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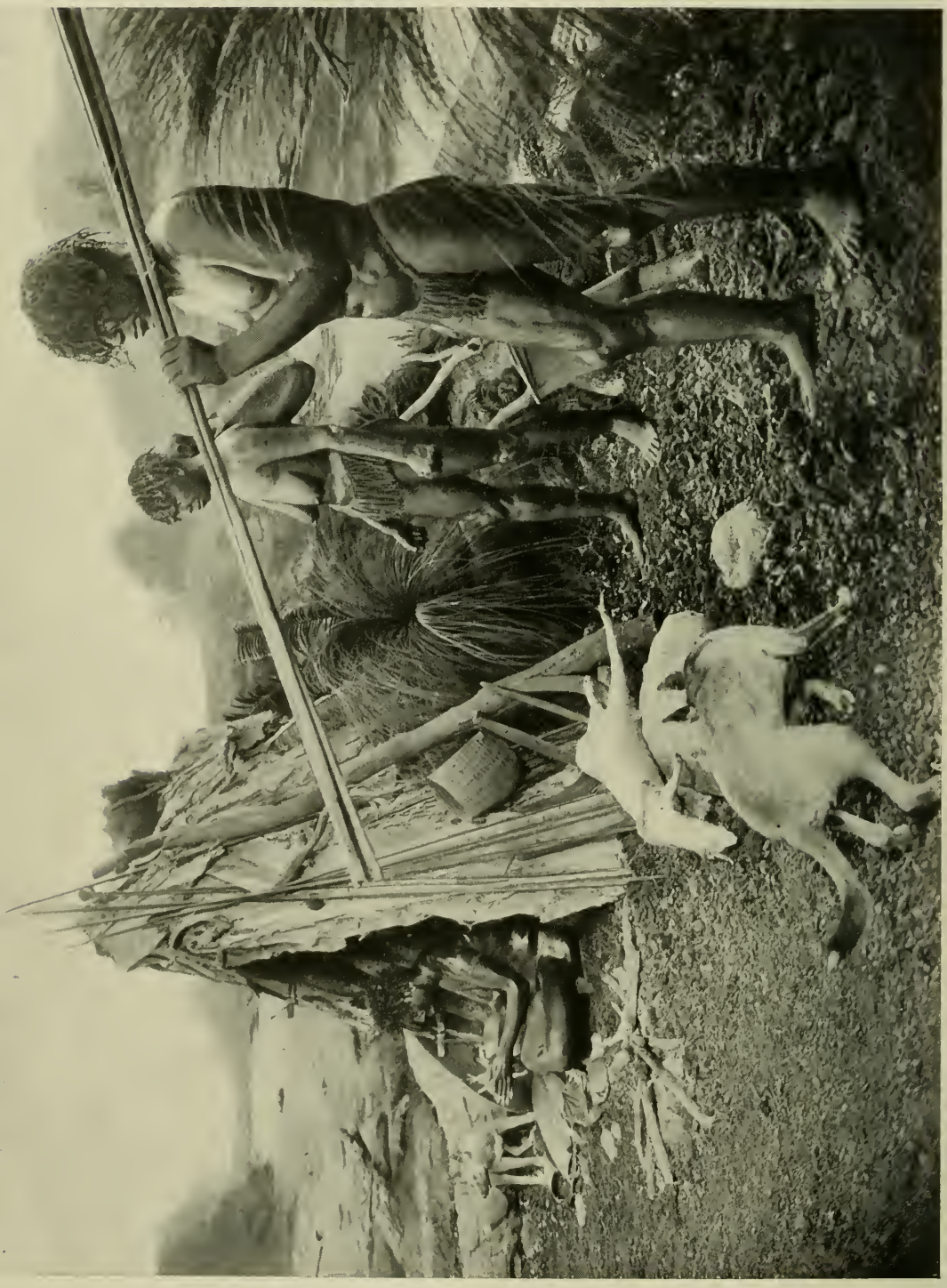
A Room-case (25 ft. by 13 ft.), recently opened in the Queensland Museum, illustrating Australian Aboriginal Life.



The view shown is from the left side; the exigencies of photographing not permitting a front aspect. *Mr. A. Alder, Artist-Taxidermist.*

Frontispiece

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MEMOIRS

OF THE

QUEENSLAND MUSEUM

VOL. II.

WITH PLATES AND FIGURE IN THE TEXT.

EDITED BY THE DIRECTOR

R. HAMLYN-HARRIS, D.Sc., F.L.S., F.R.M.S., F.Z.S., &c.

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QUEENSLAND MUSEUM BRISBANE

EVOLUTION.

THE TRANSMUTATION OF SPECIES.

ORGANIC EVOLUTION is the science of the facts, processes and laws involved in the changes of organisms. It teaches that all living things, plants and animals, have come from earlier forms. It is the study of the forces which govern the derivation of species from ancestral organisms. According to Evolution there is no break in the chain of life. Everything has come from something else, and, in a wide sense, all living things form one family. In successive periods in the history of the world higher and higher animals came into being. In the Silurian, Fishes made their appearance, Amphibians in the Carboniferous, Reptiles in the Permian, Birds in the Jurassic. Later came Mammals, and then Man himself. In its widest sense Evolution treats of the history of every form of matter and force in the universe. The term Darwinism is sometimes used as synonymous with Evolution, because Charles Darwin did so much to explain the process. The word Evolution often suggests philosophical assumptions with which science has nothing to do. The Doctrine of Descent is thus a preferable term for the general theory of Organic Evolution, whilst the word Bionomics (Bios, life; Nomos, order or custom), first suggested by Prof. Patrick Geddes, is also coming into use.

The doctrine is illustrated by a large number of facts, taken from every branch of science, among which may be summarised :—

ANATOMICAL DATA :

The facts of classification—that species fades into species, that genus is linked to genus, that genealogical trees are suggested. Remarkable connecting links give "an impression of affiliation" between groups.

A recognition of homologies—that is, of structural and developmental similarities. Thus the wing of a bird, the fore-leg of a horse, the flipper of a whale, the wing of a bat, the arm of a man, show homologies not only as regards the bones, but also as to muscles, nerves and blood vessels.

Vestigial structures, to which the Doctrine of Descent is the only key. The anatomist Wiedersheim has recorded 180 of these structures in man, among which may be mentioned the vermiform appendix and the muscles of the external ear. The splint bone of the horse and the useless vestiges of limbs in certain snakes are familiar examples of functionless structures in animals.

PALÆONTOLOGICAL DATA :

The historical evidence of the lineage of the horse from ancestors with four toes is illustrated in this Museum. Another convincingly clear ancestral tree has been traced of the elephant, with its long tusks, from tapir-like ancestors with ordinary incisor teeth.

In the Triassic section of the Mesozoic cases in the Fossil Court of this Museum is shown a cast of the Archæopteryx, usually accepted as a link between the Birds and Reptiles.

EMBRYOLOGICAL DATA :

It is generally recognised that an animal or plant is apt to reproduce, during its embryonic development, some of the stages of its ancestry in past time. Thus there are residues of gill-clefts in the development of every reptile, bird and mammal, and teeth in the baleen whale which never cut the gum.

BLOOD RELATIONSHIP :

When the blood of a horse is transfused into an ass, that of a hare into a rabbit, or that of an orang into a gibbon, or that of a man into a chimpanzee, there is a harmonious mingling of the two. But when human blood is transfused into an eel, pigeon, horse, dog, cat, lemur or non-anthropoid ape, there is no harmonious mingling. The human blood serum behaves in a hostile way to the other blood, causing a disturbance, marked, for instance, by the destruction of red blood corpuscles. The difference in the two sets of cases is that in the first the organisms are closely related; in the second they are not.

EVOLUTION TO-DAY :

Evolution is in actual process to-day, as is shown by the development of cultivated plants, such as new cereals, plums, berries, &c. Organs and organisms are still changing. With the separation of individuals by barriers of land and water and varying climate, differing lines of descent are brought into existence. Owing to a necessarily limited period of observation, the majority of these changes escape definite notice.

METHODS OF EVOLUTION.

There is no unanimity of opinion among Biologists as to the Factors or Methods of Evolution. Some scientists believe that the production of new forms is a function of variation, and that species do not arise slowly, but by sudden changes. Others lay stress on what are known as Lamarckian factors—that changes in environment directly bring about changes in the habits of animals. The best known theory is that of Natural Selection, which may be summarised as follows :—

NATURAL SELECTION :

Living creatures are very prolific. More organisms are born than can survive. The majority die young.

No two individuals of the same species are exactly alike. Variations are of common occurrence, and some of them are transmissible.

There is a ceaseless struggle for food and place—a struggle for existence. The Survival of the Fittest is the outcome. Natural Selection tends to maintain the balance of living things and their surroundings. When the environment changes, living things must adapt themselves thereto, or perish.

FAC-SIMILE OF A NEW DESCRIPTIVE LABEL (HALF-SIZE), EXHIBITED IN MAMMALIAN COURT Q.M.

ETHNOGRAPHICAL NOTES OF TORRES STRAIT.

Illustrated by Specimens in the Queensland Museum Collections.

By R. Hamlyn-Harris, D.Sc., Etc. (Director).

(Plate II and one text-figure.)

THE LEGEND OF PATRAETER.

The Ethnological Collection from Torres Strait has recently been enriched by the addition, through purchase, of a very fine specimen of a Darnley Island god made of lava, bearing the name of Patraéter, and fashioned in a truly realistic manner into a figure representing a man in a squatting position with its hands brought up to its chin in a prayerful attitude.

There can be no doubt that the contours of the original piece of lava were particularly adapted for this sculpturing, but the figure, nevertheless, displays considerable ability on the part of the unknown artist. A great resemblance in workmanship exists between this image and those of a similar nature described by Professor Haddon in his "Myths and Folktales."*

Tradition, dating back to proto-historic times, has it that this very god was found by the natives of Darnley Island (Erub), having been previously deposited there by the famous Soiida (or Sida), a mythical super-man credited with creative faculties of no mean order.† The accounts of Soiida's doings vary in a remarkable way with the different islands, and this may be best explained by the view that the legends have been handed down from generation to generation by word of mouth, giving ample scope for the imagination of the natives to run riot.

SOIIDA AT MER.

According to Mr. P. G. H. Guilletmot, from whom the specimen was obtained, and who has very kindly furnished me with the particulars here published and which were verified by several of the oldest men in the island, Soiido (pronounced Soydo) originally came from New Guinea and made his first halt on the island of Murray ("Mer") for the purpose of making the hitherto barren island fruitful. After a very brief stay he was instrumental in causing the abundant growth of bananas, cocoanuts, yams, etc.

FISH-TRAPS ON MER.

Fish-traps were also built by him round the island of Mer (*see* text figure). A. E. Hunt‡ refers to a "big fish enclosure" (Sai), evidently the

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* A. C. Haddon, Anthropological Expedition to Torres Strait, Cambridge, 1908, vol. vi.

† The Story of Sidor, by E. Beardmore, Journ. Anth. Inst., vol. 19, 1890, p. 465.
Also, Anthropological Expedition to Torres Strait, vol. v., 1904, pp. 28, 31, 35.
Also, Rev. A. E. Hunt in Ethnographical Notes on the Murray Islands, Torres Straits, Journ. Anth. Inst., vol. 28 (new series 1), 1899, p. 5.

‡ A. E. Hunt, Ethnographical Notes, etc., Journ. Anth. Inst., vol. 28, p. 17.

same.* These fish-traps, which are still visible to-day, were made with lava arranged in a semicircular fashion, with curved walls to ensure a better capture of fish. The natives, when asked for a reason for this particular method, say "To make fish silly," and it requires very little imagination to understand how the fish would wander round and round such an enclosure very much in the same fashion as a caged wild beast would parade the narrow limits of its prison home, ultimately becoming tired out and "silly" with its vain endeavours to gain the sea and liberty.

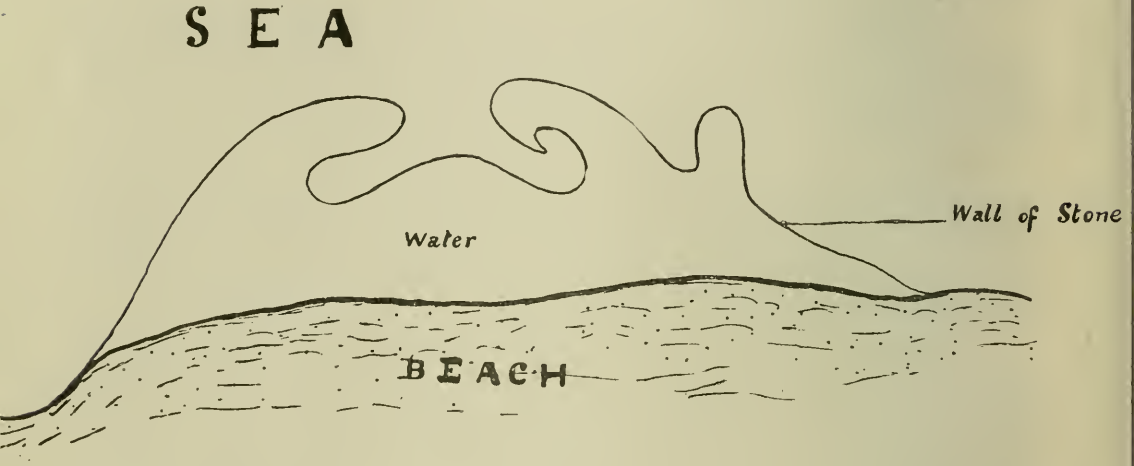

Fig. 1 Fish Trap - Darnley Island.

SOIIDA AT ERUB.

Soiido's efforts at Mer having thus been crowned with success, he next visited the island of Darnley (Erub), repeating his endeavours to fertilize the island, and whilst there he was seen by natives who consulted him about the "evil spirits" believed to have existed in and around the island, with the result that he made this god, and left immediately afterward.

PATRAETER DEPOSITED ON ERUB.

The god was deposited in a certain place on the island, so that he might be available for purposes of consultation with regard to the removal of the evil spirits through the instrumentality of the heads of the clans or tribes. This god became very antagonistic towards the evil spirits and demanded their removal—each evil spirit being represented by definite stone figures. Obedient

* *See* A. C. Haddon, Anthropological Expedition, vol. vi.

A DARNLEY ISLAND GOD—PATRAETER.
Specimen No.: Q.M. E.13/212.

Face page 2.

to the wishes of Patraéter, they removed to a neighbouring sandbank and asked if they were far enough away, to which the god replied, "No; go further." This was repeated over and over again until the evil spirits had reached the black rocks known as Bramble Cay, in the Great North-East Passage, about 26 miles from Darnley, when the god professed himself satisfied.

Bramble Cay is still visible to-day to passers-by as a rock representing a human figure (probably a female) holding an infant in its arms. In reality a considerable amount of imagination is required to confirm this.

Through the kindness of Dr. Tosh we have the following from an Erub native, Speah; this is not so reliable, Speah being from all accounts a much younger man with a more vivid imagination:—

"On Darnley were four of these stone figures—the name of each being Patraéter; they seem to have been used as land marks or rather property marks in turtle-fishing, and to have possessed the powers of the usual mythical superman. A man named Py dug up or fashioned similar figures in the creek just south of his house. This seemed to trouble Patraéter, for he insisted that they be taken away. So Py packed the two figures (or more) on a canoe and set off. Some of the earth carried with them fell overboard a little to leeward of Darnley and there formed a sandbank—Diaul; then Py and his people shouted to Patraeter, to know if they should leave them there, but the 'god' answered, 'Take im more far. We savvy pole, we savvy pole.* Take em more.' This was repeated (including formation of sandbank) at Merádi, Tōt, and Kep.

"At last Bramble Cay was reached, and Patraéter was satisfied that they be left there.

"Two figures are especially named Pȳ-wer and his picaninny Burwak. And ever after, when Py and his people went turtle-fishing on Bramble Cay, there was much ceremony. First Py went ashore alone and all canoes drew back into deep water. Having assured himself by private interview with Pȳ-wer that all was well, he signed† to his people to come ashore. There they fished for some days, and sun-dried much turtle meat, and laid in stock of fresh turtles for transport to Darnley. When all are ready to depart, Py takes some turtle grease and anoints the head of Pȳ-wer, beseeching him to send a favourable wind. Py is the last to leave."

SOIIDA AT OOGAR.

Soiido, after making the islands fertile in the prescribed way, proceeded to Stephens Island ("Oogar") and repeated his performances there. From Oogar he went to New Guinea, where he met a beautiful woman (as he had done on the other islands), who was so struck with his handsome demeanour that she fell in love with him straight away and asked him to elope. Soiido, however,

* That is, "Pole a canoe."

† Made sign, "Plenty turtle here," by half squatting down and raising the arms.

denied her the request, and informed her that he could never marry a mortal. This is indirectly opposed to the Kiwai version of Sida,* when Sida married Sagaru. He wandered to and fro from place to place, allowing her to accompany him until full moon came, when he took a certain seed from his dilly-bag and planted it in the ground. Assisted by certain incantations and weird noises he caused the seeds to germinate. The seed grew into a large tree, Soiido seating himself with the woman on different branches, and as the tree grew higher and higher they were carried up to the moon, where Soiido left her; but the woman's face is still visible in the moon until this day, going away on the wings of a cloud.

LEGEND OF THE DOIOM (ERUB).

Professor Haddon has made lengthy references to the small "weather-gods" of Torres Strait known by the local name of "Doiom" (Doyom).† but one or two additional details in connection with a specimen recently acquired by us are worth recording. About three months previous to the North-West Season, when universal drought prevails, the rain-maker (or rain-man) envelopes the "Doyom" in so-called "bush medicine" consisting of herbs, etc., and lowers the weather-god by means of an attached string into a hole specially prepared to receive it. The cord is left only partially visible after the hole has been filled up. After the "Doyom" has been allowed to remain for at least three days and three nights undisturbed in the ground, the rain-maker visits the spot fully dressed in ceremonial finery, and approaching from the weather side indulges in incantations until, by the rehearsal of magic ritual only understood by themselves, the weather-god is pulled out by the cord. It has been a belief amongst them that the fumes given off by the fermented herbs reach the "medicine man" and affects the testes, which swell in consequence. Rain follows next day after severe winds.

STORY OF BAEXIS (ERUB).

I am also indebted to Mr. Guilletmot, whose kind assistance in many ways I desire to gratefully acknowledge, for the following information:—There is a belief in "Erub" that there is in existence a so-called "dog" as large as a cow, which appears either on or before the death of men of importance (only)—"Big men"—called "Awle." The natives who have seen it say that it is black and white and abides at Stephens Island ("Oogar"). Additional colour has been lent to the belief by some natives, who are still living, declaring that it was repeatedly seen by them at Darnley during the epidemics of dysentery prevalent in 1912, when it caused great consternation amongst the inhabitants. The so-called "dog" is supposed to land on the north-west side of Darnley,

* A. C. Haddon in Folktales, Anthropological Expedition to Torres Strait, vol. v, 1904, p. 35.

† A. C. Haddon, Anthro. Exped. Torres Strait, vol. vi., 1908, p. 194, etc.

leaving its tracks on the shore to proceed along the public road wandering about, calling at the front doors of houses, and finally returning to the place from whence it came.

The apparition is said to have been seen by other native races of the South Seas, who also go so far as to say that it is "as true as god," but dare not molest it for fear of misfortune.

Dr. Tosh gives the following version obtained from Speah, the Erub native before mentioned:—

"Baexis is a beast like a dog, as big as a cow, spotted black and white, one side of face white, one side black: thought to be a devil or spirit that comes for the souls of the departed.

"The men who owned this dog were two brothers, Imai and Dowai, sons of Kanórr, who used to live at the village of Apro, or Gibbo, or Zighis on Stephen Island. Baexis is invisible when not on duty, no one knowing where he lives. Speah has seen him twice here (Darnley); once as he passed, and once on the occasion of the death of a native at Stephen Island. The woman died in the evening, and all through the night three men watched by the door of the grass house where she lay. One of these was Speah. At midnight the dogs barked as they became aware of the presence of Baexis. He came right up to the door where the men sat, then quickly turned his tail to the door and stood looking seawards. The men beheld him in fear and trembling. At last he departed along the sand-beach. When in the morning the people came out of their houses, the tracks of Baexis were visible on the sand."

A SUPPOSED AEROLITE FROM SAIBAI.

Through the instrumentality of His Excellency the Governor of Queensland, Sir William MacGregor, a large stone weighing just upon 4 cwt. was sent to the Queensland Museum for examination and report. According to local tradition the stone was supposed to be an aerolite, which had fallen on the hard ground (formed of pisolite, iron, etc.), near the sea on the island of Saibai. Subsequently it was rolled away to assist in the reclamation of the swamp area, and when taken it was nearly covered with soil. The presence of this stone was all the more noticeable owing to the fact that there is no stone of any kind on Saibai. It is common belief in the island amongst the oldest men that, in the days of their fathers, it fell from Heaven near a man sitting on the hard ground on which the village now stands; he rose and fled. It is said that a second one fell in Danan and killed a number of people there (Danan, I believe, is granitic). Mr. Charles Niebel, the Government Teacher on Saibai, sends me the following particulars relating to this supposed aerolite, and I here reproduce them for what they are worth:—

"Moigi, a man of about sixty years of age, says that when he was a boy his father Kubid told him the story, which he had heard from *his* father Ausi, that the stone in question had fallen from the sky, and did not belong to this

world. Ausi (the grandfather of Moigi) had not seen it fall—it did not fall during his lifetime, but he had the story as it had been handed down from father to son by his (Ausi's) forefathers. The story being already traditional during the childhood of the grandfather of one of our oldest men, points to the fact that the stone is more than a century old; perhaps considerably more. The stone was allowed to lie where it fell, and, during the childhood of those who are now old men, parents used to forbid their children from touching it, for fear that if they touched it more stones would fall. When the first missionaries came they said their God was the only god and that the stone could not hurt them, and suggested burning it. Then five men—Gari, Dagi, Aina, Janaur, and Kinaur—put fire round the stone, and managed to chip off the outer shell for stone clubs, but could make no impression on the inner portion. By this means they reduced the diameter of the stone by about six or eight inches. After that the stone lost its sanctity and children used to play freely round it and climb on to it."

Unfortunately, however, the composition of the stone is not that of a meteorite, so that it is very hard to bring facts already stated into line with what we now know of its nature. At my request Mr. J. B. Henderson, the Queensland Government Analyst, has very kindly supplied me with the analysis of a piece of this rock, which is as follows:—

	Per Cent.
Moisture at 100°C	0·3
Loss on ignition	0·2
Silica (SiO_2)	59·5
Iron oxide (Fe_2O_3)	6·8
Alumina (Al_2O_3)	18·4
Oxide of manganese (MnO)	0·4
Oxide of titanium (TiO_2)	0·6
Lime (CaO)	6·5
Magnesia (MgO)	1·9
Alkalies (Na_2OK_2O)	5·0
Sulphur	Nil
Phosphoric acid	Nil
	99·6

It has been remarked that the words "fell from Heaven" suggest Christian teaching rather than heathen superstition, so that Dr. Anderson's report (Australian Museum, Sydney) on the subject is all the more forcible:—

"Structurally and chemically the supposed aerolite has all the characteristics of an ordinary terrestrial rock, and none which are recognised as distinctive of meteoritic bodies. Unless its fall was actually observed by reliable witnesses, I am afraid that the meteoritic origin of this specimen would not be accepted on the evidence of legendary reports. It would be unsafe to say that a body with the characteristics of andesite might not reach the earth from space, but possibilities are not probabilities, and such a substance would have to furnish unexceptional credentials before it would be admitted amongst meteorites."

Whatever view may be taken as to the character of the stone, the ethnological significance of the belief is still of interest.

A PAPUAN MOSQUITO NET.

By R. Hamlyn-Harris, D.Sc. (Director).

(Plate III.)

During his term of office as Administrator of British New Guinea, His Excellency the Governor of Queensland, Sir William MacGregor, whilst on a visit to the Mekeo District, came across a native mosquito "net" erected in one of the houses, and was fortunate enough to secure it for the famous MacGregor collection which he made and which is now housed in the Queensland Museum in Brisbane.

The "net" takes the form and shape of a bag, 15 ft. 5 in. long by 5 ft. 3 in. wide, and is suspended with cords from the rafters of the native houses somewhat in the fashion shown in the figure, Plate No. III. Long strips of cocoanut bark, that withered portion so common around the blossoms and the leaves, are sewn together, and closed on three sides, the fourth being available for entrance and exit. This "net," though suspended, rests in the main on the floor of the houses on native mats, the frayed edges of the entrance closing automatically and sufficiently to act as an effective bar to mosquitoes.

The heat and closeness of the interior must be intense, since practically no ventilation is possible, and the bag is used by the various members of the family who repose there for the night.

The writer is indebted to His Excellency for kindly drawing his attention to this rare and unique specimen and for the assistance given in deciding its identity, which had been lost many years ago. It is no wonder that such should have been the case, for one would never think of recognising, in this cocoanut fibre bag, so useful an article as a native mosquito "net." His Excellency does not recollect ever having seen another of its kind, and tells me that the particular part of Mekeo where the "net" was actually in use—one of the villages on the river—was so infested with mosquitoes that devices had to be invented to prevent great suffering to the natives. He remembers that the boys who worked his boat up the river had to wrap up their limbs and take other precautions against the attacks of these pests; and so it is not to be wondered at that the Papuans of that part should construct such a serviceable protection for themselves whilst asleep. In this connection it may not be out of place to recall

the case of the Nile fishermen who successfully kept off mosquitoes by hanging up their fishing-nets around their beds at night. Herodotus refers to them as follows:—

"Against the innumerable mosquito they have these devices. Those that live above the marshes are protected by the towers into which they climb to sleep; for the mosquitos are unable to fly high from the ground in the breeze. But those who dwell about the lagoons have another device in place of the towers. Every man of them has a net in which he catches fish by day, and in the night uses it thus on his bed: He rigs up the net round his bed, gets in under it, and so goes to sleep. If he sleeps with his cloak or a sheet wrapped round him, the mosquitos bite clear through the covering; but they don't ever try to bite through the net."*

If fishing-nets were successful agencies in securing to their owners nights free from the molestation of mosquitoes, we have no reason to doubt the thorough effectiveness of the Papuan mosquito "net" for the purpose for which it was intended.

* Herodotus, Book 2, Ch. 95.

Top.

Closed end.

Open end.

A MOSQUITO NET USED BY THE PAPUANS OF THE MEKEO DISTRICT, BRITISH NEW GUINEA.

Hanging by cords, but base resting on floor.

Specimen No.: N.G.E. 13/315.

Face page 8.

SOME PAPUAN CEREMONIAL APPURTENANCES USED AT THE KAIVA KUKU* AND SEMESE DANCES.

Illustrated from Specimens in the Queensland Museum Collections.

R. HAMLYN-HARRIS, D.Sc., ETC. (DIRECTOR).

(Plates IV. to XI.)

*Dr. C. G. Seligman: The Melanesians of British New Guinea (Kaiva Kuku), 1910, p. 299

Plate IV.

A double-headed head-dress worn at Kaiva Kuku ceremonial dances at Orokolo, Gulf of Papua.

The figure supported on the lower mask is that of a crocodile with a human head—seen sideways; total height 4 ft. 1½ in., width 2 ft. 11½ in., length 7 ft. The whole object is mounted on a cane framework, which is covered with either cocoanut or sago palm fibre, and ornamented in red, white, and black. The frames are made of lawyer cane, previously dried in the sun and scraped and split into the various thicknesses required, many kinds of grasses being used for binding purposes. The sago-bark is well beaten out, cleaned and dried in the sun, and laid aside ready for use, but is again thoroughly washed in water when put on the frame, so that when finished a good tight surface is obtained. The colours used are generally white lime, obtained from crushed shells, charcoal, a yellow colour made from the leaves of a yellow croton, and a red bark powder or lime stained. Strips of fibre and leaves with white feathers decorate the sides of the animal. The masks take usually from three to four months in the making. Specimen No.: Q.M. E.13/215.

A HEAD-DRESS WORN AT THE KAIVA KUKU CEREMONIES AT OROKOLO.

Specimen No. : Q.M. E.13/215.

Face page 10.

Plate VI.

Four Papuan ceremonial head-dresses (same history).

Fig. 1.—Height 2 ft. 7 in. Specimen No.: Q.M. E.13/231.

Fig. 2.—A mask supporting an imitation banana tree. The broad leaves are provided with streamers. The bunch of bananas, hanging about midway, is somewhat obscured by drapings from above. Total height 4 ft. 11 in. Specimen No.: Q.M. E.13/239.

Fig. 3.—Mask with hair-pad. The human hair is matted together with burrs. Total height 2 ft. 3 in. Specimen No.: Q.M. E.13/236.

Fig. 4.—The upper portions of this head-dress are decorated with native bark cloth, painted similarly to tappa cloth, and dyed grass fringes; the whole is finished off with a crest and slit forming an imitation of the cassowary's comb or helmet. Unfortunately this is not shown in the figure, the helmet-like crest only coming to light after the photograph had been taken. Specimen No.: Q.M. E.13/241.

1 2 3 4

CEREMONIAL HEAD-DRESSES WORN BY THE KAIVA KUKU AT OROKOLO.

Face page 14.

Plate VIII.

Fig. 1.—Ceremonial head-dress with two wings mounted on a cane brim. Height 2 ft. 6 in., width 2 ft. 3 in. Used at the Kaiva Kuku dances, Orokolo, B.N.G. Specimen No.: Q.M. E.13/233.

Fig. 2.—Head-dress with a garfish-like mouth. Height 3 ft. 11½ in.; 1 ft. 11 in. in widest part. Worn at the "Semese"* dances at Waipua, Purari Delta, British New Guinea. The "Semese" are not ancestral dances as the Kaiva Kuku appear to be, but are more elaborate and exclusive, and undoubtedly war dances. These commence usually about 10 or 11 o'clock at night. A party marches along the beach fully armed, with warlike antics and beating of drums, wandering sometimes for two or three miles from the Eravos before commencing the advance; a warlike party from another Eravo goes in an opposite direction, subsequently meeting them for the final onslaught. Specimen No.: Q.M. E.13/226.

Fig. 3.—Dancing object made in imitation of a shield; cane frame covered on one side only with cocoanut fibre cloth and ornamented in red, black, and white. Dimensions, 2 ft. 7 in. × 1 ft. 8 in. Used at the Kaiva Kuku dances, Orokolo. Specimen No.: Q.M. E.13/225.

Fig. 4.—Imitation of a bird, representing a booby or gannet bird (Sula sp.). Used at the Kaiva Kuku ceremonials, Orokolo. Length 2 ft. 2 in. × 2 ft. ½ in. across from wing to wing. Specimen No.: Q.M. E.13/234.

Fig. 5.—A double-headed crocodile. Black with white spots; 6 ft. long, girth of body 2 ft. 10½ in. (Same history.) Specimen No.: Q.M. E.13/214.

* The meaning of "Semese" in Papuan dialect is "Warrior."

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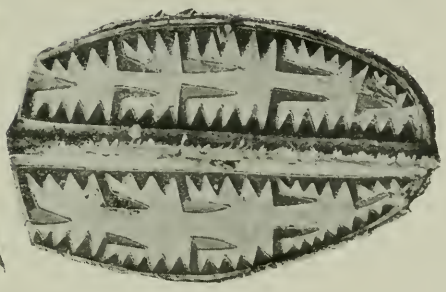

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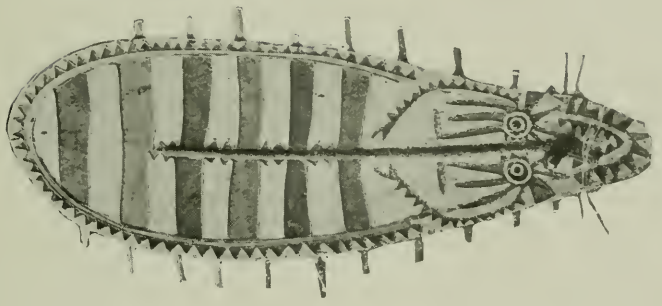

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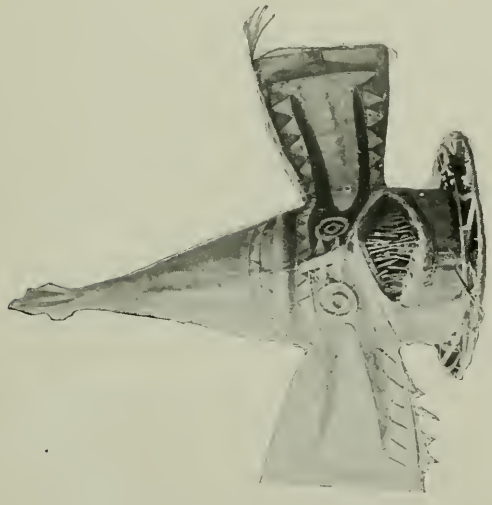

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CEREMONIAL APPURTENANCES.

Face page 18.

SACRED STICKS OR BULL-ROARERS.

As exemplified by specimens in the Queensland Museum Collections.

By R. Hamlyn-Harris, D.Sc., &c. (Director).

(Plates XII to XVII.)

So much has been published about Bull-roarers that it is quite superfluous to reiterate all that has been written or even give a brief summary of their significance. My object here is rather to assist the student who may some day feel disposed to bring all our knowledge upon this subject up to date and incorporate it in a useful whole. I thus place on record illustrations of our principal bull-roarers, all, with the exception of two New Guinea specimens (the two last noted), coming from Queensland, and bearing a very marked and general resemblance to whirlers from other parts of Australia.

The ethnological student is constantly made to realise that the various divisions of Australia into States are only arbitrary, and have nothing whatever to do with the distribution of tribes, clans, &c., since the natives knew no bounds except the bounds produced by distance and by inability to cover the enormous distances on foot.

Even the most casual glance at the plates (Nos. XII to XVI) will convince the reader of this; indeed, so remarkably similar are some of them (*see* Plate XII, fig. 1) to the wooden Churingas described by Spencer and Gillen,* that one might almost suppose the Queensland specimens to have come from the same localities.

Bull-roarers are universal throughout Queensland. The belief in them as sacred objects seems to have been comparatively simple, though as objects of tabu to women, children, and perhaps to the uninitiated they have ever been regarded as mysteries calculated to give their owners, using them, increased power and privilege.

† Dr. Roth, speaking of North-West-Central Queensland, tells us that the smaller whirring boards of about 4 inches in length and no gravings on them, sometimes red-ochred, are used as toys or playthings indiscriminately by either sex and at any age.

The graved and larger varieties of about 8 inches are used in the initiation ceremonies, and in the Yaroinga tribes of Queensland are put to the special use of love-charms.

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* Spencer & Gillen: The Native Tribes of Central Australia, 1899, chap. v.; also Across Australia, 1912, vol. 1, p. 208.

† W. E. Roth: Ethnological Studies among the North-West-Central Queensland Aborigines, p. 129, Brisbane, 1897.

* In Bull. 11, North Queensland Ethnography, Dr. Roth also figures two whirlers from Butcher's Hill used in rendering a baby "tabu." The use of such an implement for purposes of this kind is not universal.

With regard to the British New Guinea Bull-roarers I have little to say. Apparently social conditions and ceremonial life do not demand the use of such an implement, except rarely; as Mr. Douglas Rannie has pointed out to me, in those islands of the Pacific where most of the ceremonies take place in the "tabu" or "Gamal" houses no sacred implements such as the Bull-roarer are necessary, since no women or children would ever dream of going near such an abode of the mystic rites, and hence the sounding of the whirler would be superfluous. This is doubtless also the case among the Papuans of British New Guinea, except where ritual dances and observances are held out of doors, when the Bull-roarer is swung to render the ceremonial ground tabu to females.

† Seligman speaks of bull-roarers in use in Southern Massim at the Walaga Feast, but, since these are used on this occasion only and have no apparent utility, one is rather inclined to regard them as a dying relic of the past.

For the remainder the specimens will speak for themselves.

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* W. E. Roth: North Queensland Ethnography, Bulletin No. 11; Records of the Australian Museum, vol. vii., No. 2, 1908.

† Dr. Seligman: The Melanesians of British New Guinea, 1910, p. 592.

Plate XII.

BULL-ROARERS OR WOODEN CHURINGAS OF THE QUEENSLAND ABORIGINES.

Figure 1.

Dimensions: 366 mm. × 51 mm.

The larger of the two, wrapped up and shown in Figure 2. Ornamented with numerous circles, which are in their turn connected by lines to the larger central concentric circles, and provided with a rough semicircular curve at each end. Reverse side similar (suggestive of a frog totem). Red ochre.

Locality: Glenormiston, North-West-Central Queensland. Specimen No.: Q.E. 13/256.1.

Figure 2.

Two (figures 1 and 3) wrapped in old piece of pituri cloth (old sacking) and tied with the human hair cord attached to the whirlers. As carried about from place to place.

Locality: Glenormiston, N. W. C. Queensland. Specimen No.: Q.E. 13/256.

Figure 3.

Dimensions: 356 mm. × 49 mm.

Lesser of the two shown in figure 2, wrapped up. Ornamented with down cemented with human blood (both sides). Red ochre.

Locality: Glenormiston, N. W. C. Queensland. Specimen No.: Q.E. 13/256.2.

Figure 4.

Two bull-roarers in tea-tree bark sheath (dilapidated). Specimen visible has no markings on reverse side.

Locality: Glenormiston, N. W. C. Queensland. Specimen No. Q.E. 13/250.

Figure 5.

Dimensions: 241 mm. × 36 mm.

One of the two shown in figure 4 enclosed in a tea-tree bark sheath, with three sinuous lines running down the centre, suggestive of a snake-totem. The semicircles are arranged facing one another, the significance of which must not be lost sight of. No reverse markings of any kind. Red ochre. Roughly figured in Edge-Partington, p. 118 (Australia), No. 8.*

Locality: Glenormiston, N. W. C. Queensland. Specimen No.: Q.E. 13/250.1.

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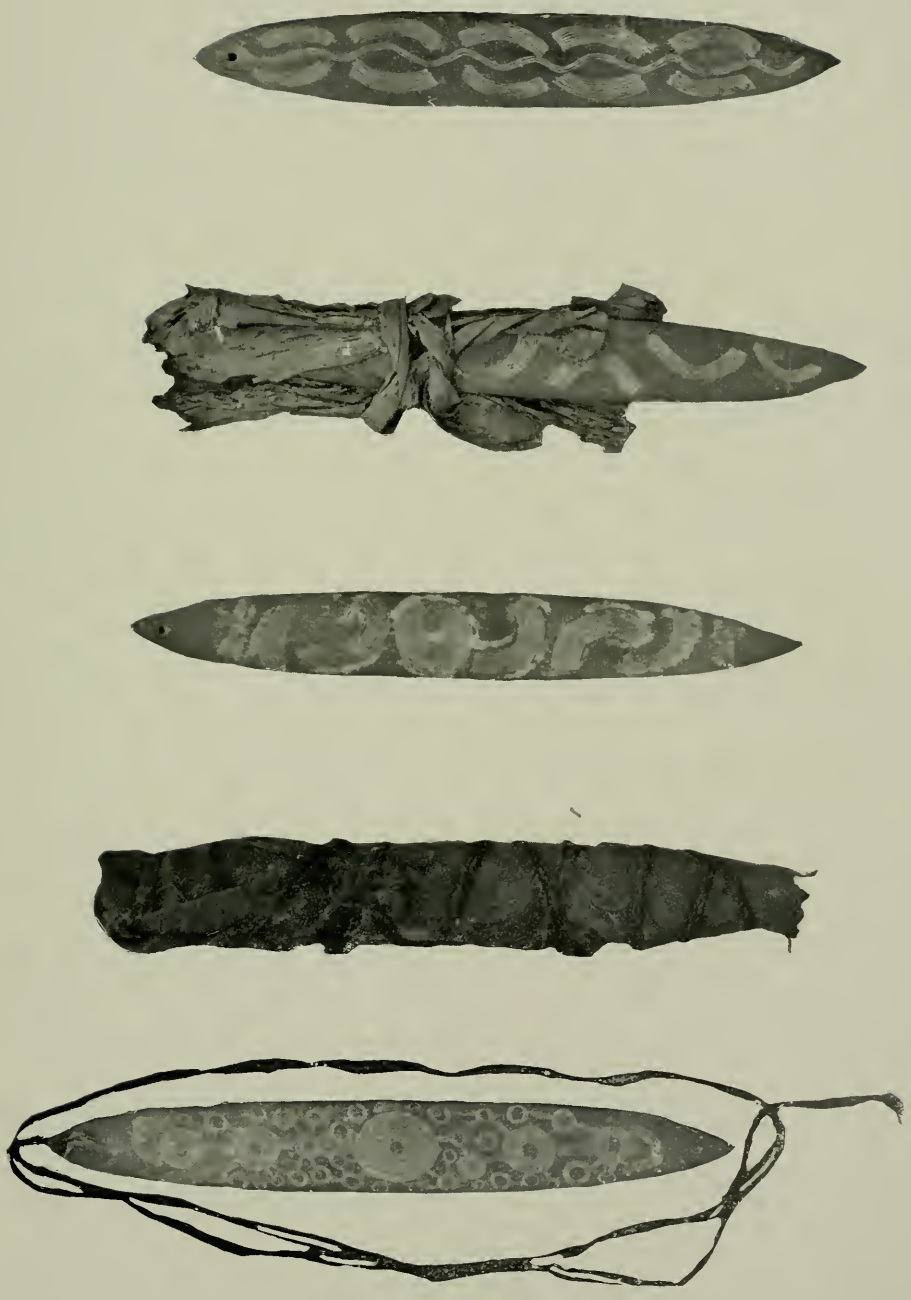
* Edge-Partington: Ethnographical Album of the Pacific Islands, third series, August, 1898.

Note.—In using the terms "obverse" and "reverse," it is understood that the obverse side is the one figured.—R.H.H.



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BULL-ROARERS OR WHIRLERS.

Face page 28.

Plate XIII.

BULL-ROARERS OR WOODEN CHURINGAS OF THE QUEENSLAND ABORIGINES.

Figure 1.

Dimensions: 290 mm. × 52 mm.

Native name "Wilmurra," Kalkadoon tribe. Roughly finished, concavo-convex, crude ornamentation in form of badly cut lines (in threes) on one side of the whirler only. Wood (very dark), though hard, splits easily in direction of grain. Provided with human hair cord, which is attached to hole and cemented with gum cement. Roughly figured in Edge-Partington (Australia), p. 118, No. 10; erroneously called "Wilmuna."

Locality: Leichhardt (Selwyn District), N. W. C. Queensland. Donated by Mr. A. Meston. Specimen No.: Q.E. 13/237.

Figure 2.

Dimensions: 359 mm. × 40 mm.

With two star-shaped designs, two semicircles, and numerous transverse lines; reverse side similar. The human hair cord attached to this specimen measures 5 ft. 6½ in. in length.

Locality: Glenormiston, N. W. C. Queensland. Specimen No.: Q.E. 13/239.

Figure 3.

Dimensions: 327 mm. × 47 mm.

The outer portions smeared with blood, to which feather-down has been attached, a good deal of which has worn off in handling; human hair cord attached. The reverse side is ornamented with one large circle of concentric lines in the centre, and the remaining space is taken up by transverse lines of a very rough nature. Figured in Edge-Partington, p. 118, No. 5.

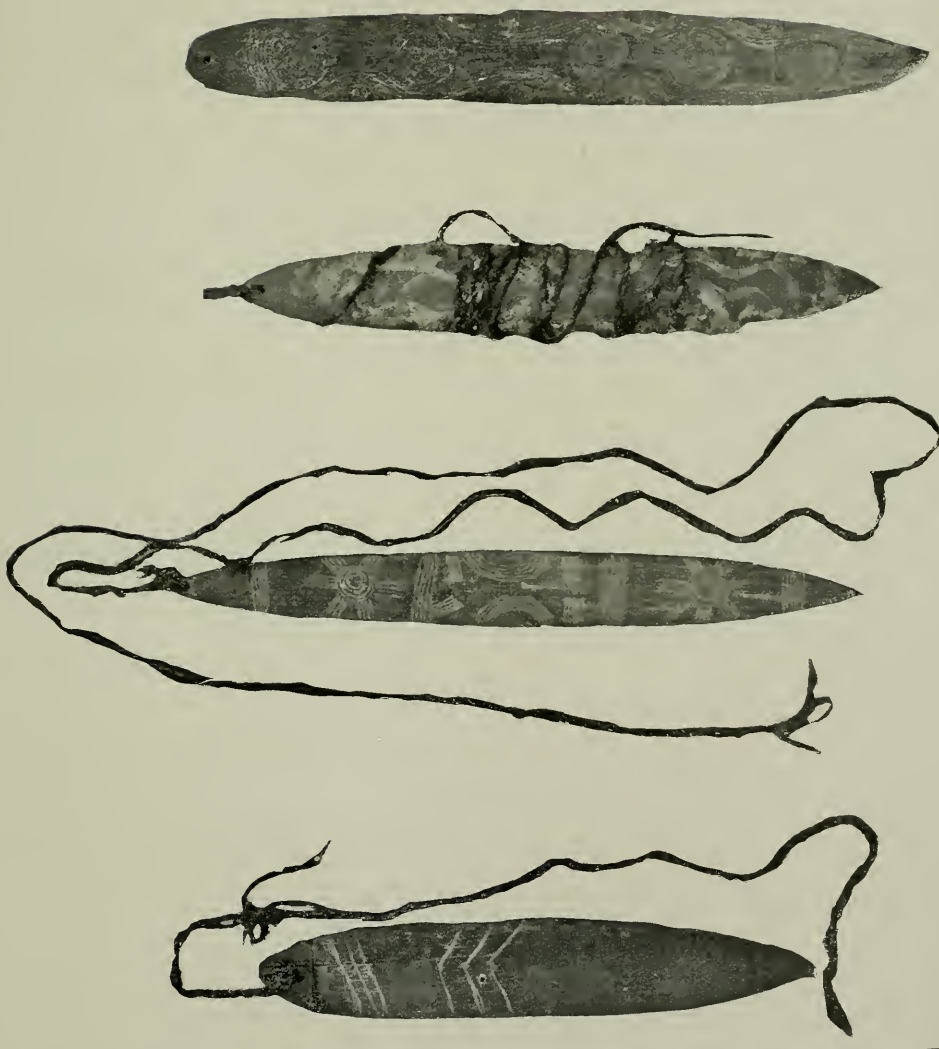
Locality: Glenormiston, N. W. C. Queensland. Specimen No.: Q.E. 13/240.

Figure 4.

Dimensions: 391 mm. × 52 mm.

The five concentric circles are compassed on their sides by a series of five lines running snake-like nearly the whole length of the implement; four series of short lines occupy some of the short intervening spaces. Reverse side very similar.

Locality: Queensland (exact locality unknown). Specimen No.: Q.M. 13/254.



BULL-ROARERS OR WHIRLERS.

Face page 30.

Plate XIV.

BULL-ROARERS OR WOODEN CHURINGAS OF THE QUEENSLAND ABORIGINES.

Figure 1.

Dimensions: 385 mm. × 38 mm.

Five series of semicircular lines placed back to back, not facing one another. The reverse side similar, the circle being replaced by transverse lines. Hard wood; red ochre.

Locality: Queensland (exact locality unknown). Q.M. Specimen No.: Q.E. 13/241.

Figure 2.

Dimensions: 325 mm. × 37 mm.

Flat piece of wood, rudely shaped, pointed at each end and coloured with red ochre. One of the few Queensland churingas, ornamented with dots, so significantly introduced by the Central Australian tribes in their designs to represent the footprints of animals or the tracks of the men. Roughly figured in Edge-Partington (Australia), p. 118, No. 6.

Locality: Glenormiston, N. W. C. Queensland. Q.M. Specimen No.: Q.E. 13/242.

Figure 3.

Dimensions: 492 mm. × 50 mm.

Both the obverse and reverse sides ornamented with circles, finished off with occasional short series of lines. Red ochre.

Locality: Glenormiston, N. W. C. Queensland. Q.M. Specimen No.: Q.E. 13/243.

Figure 4.

Dimensions: 340 mm. × 39 mm.

The reverse side of this roarer, which is suggestive of a snake totem, is figured in Edge-Partington, p. 118, No. 7. Hardwood; red ochre.

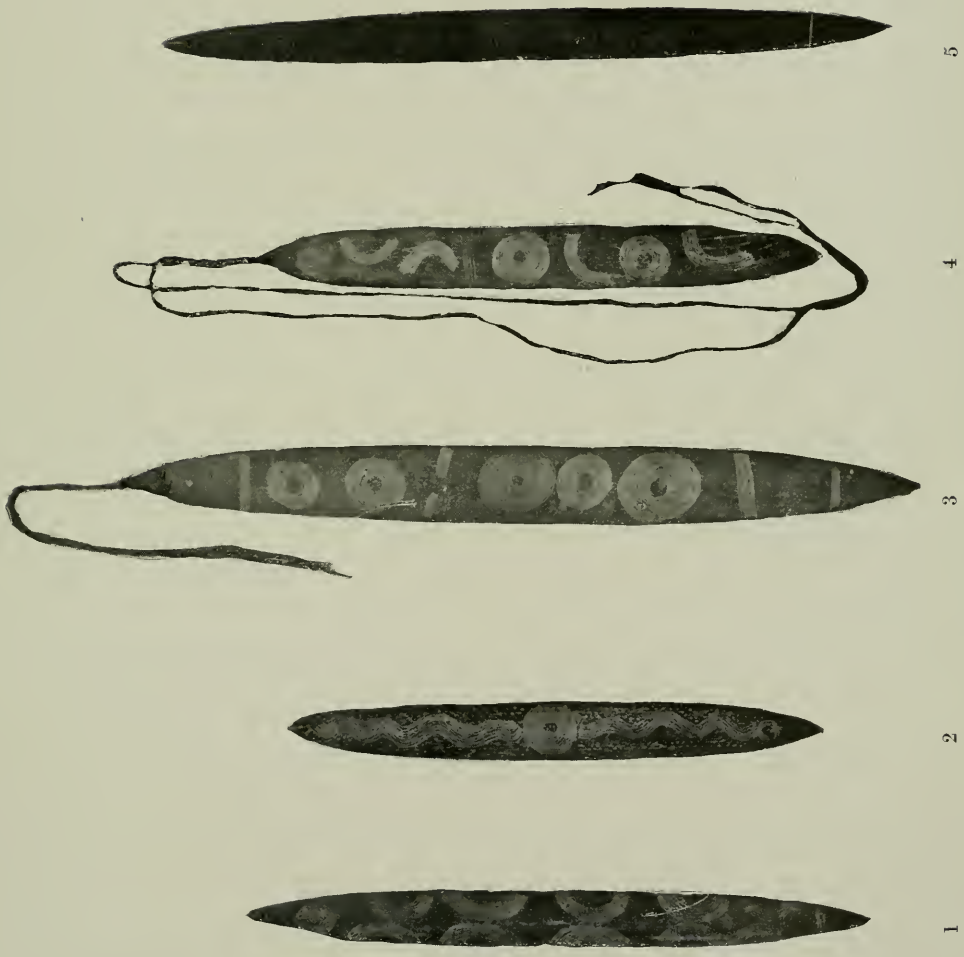
Locality: Western Border of Queensland. Q.M. Specimen No.: Q.E. 13/244.

Figure 5.

Dimensions: 433 mm. × 31 mm.

Plain with the exception of a row of small white marks arranged around the edges, nearly worn off (invisible in figure). Red ochre.

Locality: Queensland (exact locality unknown). Q.M. Specimen No.: Q.E. 13/245.



WHIRLERS OR BULL-ROARERS.

Face page 32.

Plate XVI.

BULL-ROARERS OR WOODEN CHURINGAS.

Two bullroarers exposed to show emu feathers wrapped up with them in cloth (modern). The cord attached to churingas is of human hair. Wood stained with red ochre. A different though similar pattern is graved on each side, mainly circles.

Locality: Upper Mulligan River, N. W. C. Queensland. Specimen No.: Q.E. 13/236.

BULL-ROARERS OR WOODEN CHURINGAS IN WRAPPING—EXPOSED FOR VIEW.

Q.M. Specimen No.: Q.E. 13/236.

Face page 36.

Plate XVII.

Figure 1.

BULL-ROARER FROM OROKOLO, BRITISH NEW GUINEA.

668 mm. × 100 mm. Specimen Reg. No.: Q.M. E.13/219.

The front is ornamented with the crude figure of a reptile, probably a crocodile; the back is quite plain. "Attached to a long string on the end of a stick and swung round the head, giving forth a loud humming sound, sounded to warn the women and children to 'clear' before a dance." Used by the Papuans of the Gulf Division at the Kaiva Kuku Dances.

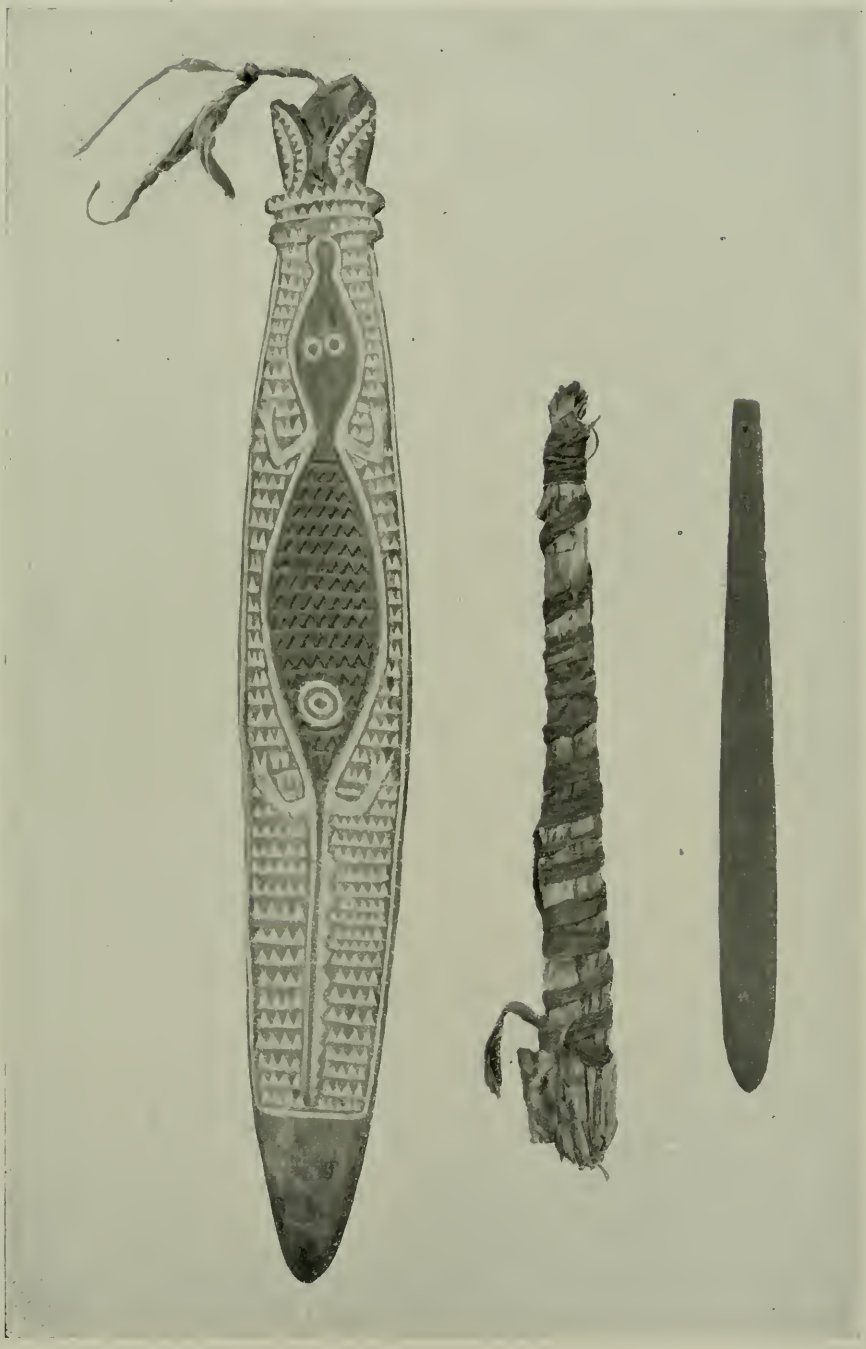
Figure 2.

BULL-ROARER FROM THE MEKEO DISTRICT, BRITISH NEW GUINEA.

380 mm. × 40 mm. Specimen No.: N.G. 18639.

Front and back quite plain, spatulate shape, in sheath of bark. This specimen is figured in Edge-Partington * as a spatulate with no history, but thanks to His Excellency Sir William MacGregor, K.C.M.G., who collected it, we now know that it was used by masked men when proclaiming a "tabu" on cocoanuts in their tribe. The sheath is rather significant, and reminds one of the Queensland specimens.

* Edge-Partington: Ethnological Album of the Pacific Islands, third series, August, 1898, p. 73.



BULL-ROARERS.

1. Q.M. Specimen No.: E. 13/219.

2. Specimen No.: N.G. 18639, with sheath of bark.

Face page 38.

HERPETOLOGICAL NOTES.

Part I.—SYSTEMATIC.

Including the Description of One New Species.

By H. A. Longman.

CARETTOCHELYS INSCULPTA, Ramsay.*

Whilst working through a number of duplicate Chelonian specimens, a dusty carapace and plastron were discovered in inner recesses of old shelves. On cleaning and examination these proved to be the rare *Carettochelys insculpta,* Ramsay, first described from the Fly River, British New Guinea. For the reception of this monotypic tortoise, the family Carettochelyidæ was established by Boulenger.†

Our carapace is 49.5 centimetres in length, and is thus somewhat larger than the type. With the exception of the position of neural plates it agrees well with Ramsay's description. In our specimen the first neural plate is separated from the second by a distance of 8 mm. Plates two, three, and four are joined, and the two former are apparently bisected by a transverse line, scarcely so deep as an ordinary suture, which gives them a divided appearance. Thus it would be almost correct to speak of eight neural plates and not six. Plate four just reaches number five by means of a lanceolate strip. A space of 8 mm. separates plates five and six. The plastron has been sawn away from the carapace and thus the sutures between them are somewhat disturbed, but although the right and left sides are not symmetrical there are no signs of intermarginals.

As the Museum was indebted to His Excellency the Governor of Queensland, Sir William MacGregor, for a large proportion of specimens received from New Guinea, his attention was directed to this specimen. To our gratification Sir William at once remembered it, courteously giving the information that it had not been secured in the Fly River but in the Morehead River. Should complete specimens come to hand, it may be that the union of the neural plates is accompanied by other distinct features, and this large Chelonian from the Morehead may thus be entitled to specific rank. Reg. No. Q.M. J13/902.

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* Ramsay, Proc. Linn. Soc. N.S.W. (2) i (1886), p. 158.

† Boulenger, Ann. & Mag. N. H. (5) xix, 1887, p. 171.

ASPIDITES COLLARIS, new species.

From Mr. E. A. Bignell, Avondale Station, *viâ* Cunnamulla, the Queensland Museum received in March, 1913, a specimen which differs so markedly from all described Australian Boidæ that new specific rank has been given to it under the above name.

Rostral slightly broader than deep, the portion visible from above about one-third as long as its distance from the frontal; internasals one-third longer than broad, shorter than the anterior præfrontals which are as long as the loreal region. Posterior præfrontals broader than long, separated from each other by a small azygous shield. Frontal as long as broad, somewhat narrower posteriorly, almost pentagonal, broader than the supraoculars. Parietal region broken up into small shields, of which two are as large as the internasals. Two subequal loreals. Three præoculars, the lowest of which is exceedingly small, and three or four postoculars. Thirteen upper labials, seventh entering the eye, third largest; nineteen or twenty lower labials, the nine anterior being longer and narrower. Mental shield small; a deep mental groove. Scales on middle of body 64; near vent 40; the two series on each side nearest the ventrals are enlarged. Ventrals 303; anal entire; subcaudals 52, of which the first and two of the last are divided.

Colouration: Light brown above, darker in the vertebral region, with irregular hair-brown bands, often anastomosing on the sides. Ventrals and spaces between bands on sides dirty white; anterior ventrals dark-clouded. A wide white band extends over the occiput, and the whole of the under surface of the head is pure white. The supraoculars, the adjoining postocular, and two small parietal scales are glossy black, as is also the rostral shield, but the area between these is again white, though not so markedly so as the upper and lower labials, the under surface of the head, and the occipital region. The frontal is also dark-clouded on its posterior surface.

Total length 620 millim.; tail 58. Reg. No. Q.M. J13/944.

The question arises whether the white markings on the head do not represent a variation to be found in juvenile forms of *Aspidites ramsayi*, Macleay, but the writer has no knowledge of such marked divergence from adult colouration in any of the Australian Boidæ. In the Horn Expedition report* there is noted an *Aspidites melanocephalus*, the head of which was uniform pale brown. Apart from this striking colouration, the structural differences separating our snake from *A. ramsayi*, as redescribed by E. R. Waite,† are but slight.

* Horn Expedition, Part II. (Lucas & Frost), 1896, p. 147.

† Proc. Lin. Soc. N.S.W., 1894, vol. 9, p. 715, pl. 50.

HERBERTOPHIS PLUMBEUS, Macleay.

During the Queensland Government's Expedition to Bellenden-Ker Range in 1889, four specimens of this snake were secured for the Museum. In the official report the species was referred to, under Macleay's name, as "A nocturnal snake peculiar to the Herberton district, in which it is common." As there seems to be an element of doubt as to whether this snake should be included as a Stegonotus, a careful examination has been made of the specimens. There are 13 or 14 maxillary teeth which exhibit the characteristic dentition of *Stegonotus modestus* as figured by Boulenger in the B.M.C. i., p. 364. The front teeth are the smallest. An increase in size may be noted towards the middle; then is apparent a break which would casually be looked upon as a diastema, but close examination reveals the presence of two very much smaller teeth. The penultimate and two preceding teeth are the largest in the series, the final tooth being again smaller. In his description of *Lielaphis* (*Stegonotus*) *modestus,* Günther remarks: "It is not rarely doubtful whether the dentition of a specimen should be considered diacranterian or syncranterian; but it is never lycodont." The same remarks apply in general to the specimens under consideration. *Stegonotus muelleri,* the type specimen of Duméril and Bibron, was described by them as diacranterian. Thus the question arises as to whether the genus Lielaphis, instituted by Günther,* should not more rightly be considered the correct appellation. But in the earlier of the two articles quoted Günther refers to the teeth as "subequal, in small number." The later description of *Lielaphis modestus* indicates the variation in size of maxillary teeth which is characteristic of our specimens, and which is appropriated and figured for the genus Stegonotus by Boulenger. As a normally syncranterian dentition may very readily appear to be diacranterian, some considerable latitude must be allowed on Duméril and Bibron's description. Thus it seems correct to the writer to substantiate Boulenger's query and definitely place Macleay's species as *Stegonotus plumbeus.*

A few other remarks may be made on our specimens. Only the fourth and fifth labials enter the eye, and the angle of the third fails to reach so far. The number of ventral scales varies from 210 to 218, and the subcaudals, which are in pairs, from 78 to 85, though one, which is obviously damaged, has but 61. In colouration and otherwise in lepidosis, our specimens agree with Macleay's description.

STEGONOTUS MODESTUS, Schleg.

In the Queensland Museum there is a specimen, bearing this name, received from Torres Strait. The dentition and colouration are apparently

* P.Z.S., 1863., p 59, & 1877, p. 129.

characteristic, but the body scales are arranged in 15 instead of 17 series. In other respects the lepidosis is as described.

PSEUDECHIS WILESMITHII, De Vis.*

Amended description and note on affinity with *P. scutellatus,* Peters.—The type specimen named as above is one of the longest Australian venomous snakes yet received by the Queensland Museum. Its length (body removed from skin) is no less than 2,215 mm., of which the tail is 340 mm. Owing to extraction of the venom glands, the head is in a somewhat damaged condition. The rostral was originally described as being one-fourth longer than broad, whereas the breadth is slightly in excess of the length. On one side only are there two præoculars, and there are but six upper labials. On the left side the lower anterior temporal is wedged in between the fifth and sixth labials forming the seventh shield noted by De Vis. The lower angle of this shield fails to reach the gape on the right-hand side. There are three lower labials in contact with the anterior chin-shields. The diameter of the eye slightly exceeds the distance from the mouth, but owing to the state of the head the proportion cannot be obtained with accuracy. With these necessary emendations, the specimen demonstrates so close an alliance with *P. scutellatus,* Peters, that the writer doubts the wisdom of separating them. It may be noted, however, that the frontal is slightly wider than either of the supraoculars, and is but one and a-half times as long as broad. On each side the posterior nasal is separated from the præocular by a space of 2 mm. In a specimen of *P. scutellatus,* received from Mr. W. H. Edwards, Colosseum, North Coast line, Queensland, the frontal is also slightly wider than either of the supraoculars, but its length is almost twice the breadth. In colouration both examples are brown, one being darker than the other. The lighter colour on the snout and sides of the head is noticeable in each.

* De Vis, Annals Queensland Museum, No. 10, 1911, p. 25.
Peters, Mon. Berl. Ac., 1867, p. 710.
Boulenger, B.M.C. Snakes, iii, 1896, p. 331.

Part II.—ETHOLOGICAL.

By H. A. Longman.

Although the scientific worker is hopelessly handicapped by the vividly imaginative journalist when snake stories are told, yet occasionally there are noticed incidents startling enough in their way. During the cooler months a young and lithe *Diemenia psammophis,* Schleg., popularly known as a whip-snake, usually retired under a piece of bark placed in its case, and it was only to be tempted out on warm and sunny days. On one such occasion a small skink lizard was introduced, and the snake commenced a lively chase. The lizard ran under the bark and on reaching the other side scampered back over the top, closely pursued by the snake. Again the lizard entered the bark tunnel, through which the tail of the snake was rapidly disappearing, making a spurt to keep up with the main body. The snake darted for the lizard, missed it, and then seized its own retreating tail about two inches from the tip. With characteristic pertinacity it held on, and apparently the classic episode of a snake swallowing itself was to be attempted. It was not until the snake was taken out of its case and forcibly handled that it let go, there being apparently no distinction to the ophidian palate between its own flesh and that of its favourite lizard.

The introduction of a Frilled Lizard, *Chlamydosaurus kingii,* Gray, to a vivarium containing three Green Tree Snakes, *Dendrophis punctulatus,* Gray, resulted in a pretty display of reptilian characteristics. The former was previously inert and slow of movement. One of the snakes raised its head and neck in order to examine the newcomer. Then the lizard suddenly rushed across the vivarium and stood facing the snake, its frill expanded to the maximum and its mouth widely open. In its eyes was the light of battle, and its head moved slowly from side to side as if working up a violent rage. In this position it remained for over three minutes. The snake, too, did its utmost to make itself look formidable. Its scales were distended and the underlying pattern of peacock-blue was visible throughout the body. Both creatures were transformed. Two quick rushes were made by the lizard, but the marvellous agility of the snake and the old wood and débris around enabled it to escape. Not until some time after the snake had securely hidden itself did the lizard resume its usual peaceful appearance.

The under colouring of peacock-blue is very noticeable in Green Tree Snakes when they take an unusually large meal. Although unaided by venom or constricting power, these snakes succeed in overcoming and eating skink lizards of a diameter exceeding themselves. Swift and agile in the chase, they are very tenacious of their prey, and when once a grip is taken it is seldom that they leave go, notwithstanding severe bites from a lizard. Should a skink be

seized in the middle of the body, the snake's jaws gradually work along until the head is reached. These snakes are also fond of frogs and small birds. Our specimens thrive well in captivity.

Remarkable changes of colour are sometimes exhibited by the common Jew or Bearded Lizard. *Amphibolurus barbatus*, Gray. Specimens which are normally brownish grey and in which the characteristic colour markings are not very conspicuous are quite transfigured when angry. The whole of the head and gular tissues capable of distension (the "bearded" portion) become quite black. This chameleon-like change extends even to the ends of the prickles. With the yellow mouth wide agape and the surrounding black, the little reptile looks quite dangerous as it faces its supposed foes. When the excitement has subsided it regains its ordinary colouring in a short time, and the black complexion of anger is a thing of the past. Older specimens, especially males, are permanently darker, and the series of five or six pairs of lighter spots on each side of the vertebral line are by no means so noticeable as in the young.

In captivity the Bearded and Frilled Lizards feed freely on grasshoppers, beetles, cockroaches, and similar insects. Moths and butterflies are also taken, and a big spider is not always disdained. A glass jar containing cockroaches was often placed inside the case, and the lizards tried to bite through the glass, and seemed never to learn the lesson of its transparent impregnability. In their native element these lizards must destroy large quantities of grasshoppers and other pests, and it is unfortunate that so few farmers are aware of this. At present they are considered fair prey for the dogs or are ruthlessly killed with a stick. The Frilled Lizard is a bizarre and harmless animal possessing several unique characteristics which have been described at great length, and it is now by no means common. Efforts are being made to encourage its protection in Southern Queensland.

The Australian Black Snake, *Pseudechis porphyriacus*, Shaw, must be included with those venomous reptiles which enjoy an occasional cannibalistic meal. In order to provide temporary accommodation, a large specimen of *Diemenia psammophis*, Schleg., was placed in a small vivarium with a Black Snake nearly twice as large. For two days the two lived amicably together, but on the following day the Diemenia disappeared into the interior of its comrade.

R. L. Ditmars, who has placed on record many valuable observations on the feeding habits of snakes, states that members of the Australian genera Pseudechis, Diemenia, and Brachyaspis prefer small mammals and birds to other food, adding: "None could be coaxed to take batrachians, which appeared

quite foreign to their diet.''* So far as the common Black Snake is concerned our experience is at variance with Ditmars' notes, for this species prefers frogs to any other food. In captivity it feeds regularly on the commoner species of batrachians, and these constitute the food which is most abundant in the swampy localities where this snake is generally found. Possibly Australian snakes have a prejudice against American frogs.

The writer has some doubt as to the truth of the popular notion that a snake is easily killed. When a reptile succeeds in crawling away after having received a smart blow on the back, the would-be slayer almost invariably assumes that it has ''crawled away to die.'' But in many cases, unless wounded in the cardiac region, it is more likely that it recovers. Several remarkable instances have come to our personal knowledge in which snakes have subsequently recovered although they had received so severe a blow that the posterior half of the body seemed limp and lifeless. In one case a Carpet Snake, *Python variegatus*, Gray, was encountered at night in a fowlhouse after it had devoured a small fowl. It was stunned by a hard blow; its ventral surface was cut open and the fowl extracted, and the snake was then left for dead. Next morning it was not to be seen, and three days later it was found, still alive, under a heap of wood a hundred yards away, and was finally despatched. Those who have had occasion to obtain specimens of the larger venomous snakes in Australia (particularly *Pseudechis porphyriacus*) will readily realise that country residents prefer to kill a snake ''two or three times over,'' and thus preclude all possibility of a resurrection. Among our own experiences the case of a small *Diemenia psammophis* may be given as an instance of tenacity. When placing this specimen over six months ago in a small vivarium, it sprung upwards before the lid could be properly closed, with the result that the cover fell on its back about one-third from the head. For some weeks after this the whole of its body posterior to the injured part was incapable of motion. During two periods of ecdysis the snake was unable to free itself behind this part, and the epidermis had to be removed by the writer. The disruption of the vertebræ was so marked as to be conspicuous on the dorsal surface. Notwithstanding this, the snake gradually recovered the use of its posterior part. It is now lively and healthy, and will often take three or four small lizards in succession and eat them with surprising speed.

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* Zoologica, New York Zool. Soc., vol. i, No. 2, p. 226.

A RE-EXAMINATION OF MACLEAY'S NEW GUINEA AND QUEENSLAND FROG TYPES.

By Dene B. Fry,

Australian Museum, Sydney.

The present short paper is primarily the result of an inquiry from the Queensland Museum as to the frog described by Macleay as *Hylophorbus rufescens.* It deals briefly with the status of the five frogs taken by the " Chevert " expedition in 1875, four of which were collected in British New Guinea and one at Cape York. These were characterised and named by Sir William Macleay in the Proceedings of the Linnean Society of New South Wales for the year 1878. So short and inadequate were his descriptions that, in the absence of any subsequent examination of the types, the true systematic position of his species has been up till the present one of surmise. They have thus remained a stumbling-block to systematists, and, as a direct result, have either dropped out of recent literature or remain shrouded with doubt, to be referred to only in footnotes and appendices.

One of Macleay's species, *Hylarana nebulosa,* was recognised by Dr. Boulenger as a synonym of *Rana papua,* Lesson. Another, constituting a new genus and species, namely, *Ranaster convexiusculus,* was placed doubtfully in the family Pelobatidæ, where it has remained, its true position never having even been suggested. The other three—a new genus and species, *Hylophorbus rufescens,* and two new tree-frogs, *Litoria guttata* and *L. dorsalis*—are not mentioned in recent literature on Papuan Batrachia. Two of these species are synonymous with previously described forms, and two antedate more recently characterised frogs, while *L. dorsalis* is unidentifiable. Briefly, this may be stated as follows:—

Ranaster convexiusculus, Macleay, antedates *Phancrotis novæ-guineæ,* van Kampen.

Hylophorbus rufescens, Macleay, antedates *Mantophryne lateralis,* Boulenger.

Hylarana nebulosa, Macleay, is synonymous with *Rana papua,* Lesson.

Litoria guttata, Macleay, is synonymous with *Hyla infrafrenata,* Günther.

Litoria dorsalis, Macleay, is obviously not a Litoria, but cannot be identified as the type is lost.

Nothing would be gained by figuring the more or less dilapidated type specimens, for those which will stand as valid species have since been well figured

under later names. The same may be said of a detailed redescription of the types which, as they have deteriorated considerably, might easily be misleading. The main points of accord then, and especially any in which there occurs a divergence from their well-described synonyms, have alone been mentioned.

The five species are dealt with separately as below.

1. RANASTER CONVEXIUSCULUS, Macleay.

Macleay, Proc. Linn. Soc. N. S. Wales, ii., 1878, p. 135. Type locality: Katow, British New Guinea.

Boulenger, Brit. Mus. Cat. Batr., 1882, p. 444.

van Kampen, Nova Guinea, ix., 1909, p. 36, pl. ii., fig. 4 (*Phanerotis novæ-guineæ*). Type locality: Merauke, Dutch New Guinea.

The type specimen of this frog is in very fair condition, and shows that the species is identical with Dr. P. N. van Kampen's later described species, *Phanerotis novæ-guineæ*. Macleay placed his genus in the family Discoglossidæ as defined by Dr. Günther.* This has probably been the real cause to which the obscurity of the frog's identity is due, for all authors have followed him. In reducing the many families of Batrachia Salientia admitted in the first edition of the British Museum Catalogue, Boulenger transferred a section of Dr. Günther's family Discoglossidæ to the Pelobatidæ, and with it went, not without doubt, *Ranaster convexiusculus*. In the absence of any further material of which the identity was recognised, subsequent authors have concurred with him, and Ranaster has come to be regarded as rightly belonging to that family. In describing *Phanerotis novæ-guineæ*, however, van Kampen records it as the first Cystignathid frog from New Guinea. Dr. Boulenger founded the genus Phanerotis† for an undoubted Cystignathid frog from New South Wales, but considerable doubt exists as to whether *P. novæ-guineæ* is really congeneric. However, this hardly affects the present question, for although Dr. van Kampen does not describe the sternal apparatus and sacral vertebræ of his species, he has presumably examined the internal characters in coming to his conclusion as to its family relationships, and, as it is identical with Macleay's species, we must apparently accept *Ranaster convexiusculus* as a member of the family Cystignathidæ. I cannot dissect Macleay's type, but from an examination of the externals I feel convinced that this course will ultimately prove correct.

It seems best to regard the few external differences which occur between *P. fletcheri* and *P. novæ-guineæ* as of generic value. These are the ranoid habit and the distinct tympanum of the former. If we do not accept this separation we must admit a remarkable instance of discontinuous distribution, or convergence. The almost total absence of Cystignathidæ in New Guinea is a matter of surprise, for we must account for their presence in Australia as we do the Hylidæ, which family has freely entered Papuasia and found it favourable to

* Günther, Cat. Batr. Brit. Mus., 1858, 1st ed., p. 34.

† Boulenger, Proc. Linn. Soc. N. S. Wales (2), v., 1891, p. 593.

specialisation, but I think it is a significant thing that some of the Papuan frogs now regarded as belonging to the family Pelobatidæ differ from some Cystignathids in characters which are a matter of "degree" only. Thus *Lechriodus melanopyga*, Doria,* can hardly be distinguished from *Phanerotis fletcheri* on externals alone, a fact which also serves to show how slender and unstable is the boundary between the Australian members of the family Cystignathidæ with slightly dilated sacral vertebræ, and some of the Pelobatidæ in which they are a little more so.

The type of *Ranaster convexiusculus* agrees almost exactly with Dr. van Kampen's splendid description and figure of *P. novæ-guineæ*. It differs only in the distribution of the warts on the back, which are not so well developed and confined more to the sides. Dr. van Kampen makes no mention of the large, rather spaced maxillary teeth, which certainly obtrude themselves upon one's notice. The vomerine teeth are exactly as they are figured by Dr. van Kampen but differ from the condition found in *P. fletcheri*, in which they are weaker and do not extend out beyond the level of the choanæ. Macleay describes the tongue as "largely notched behind," but I find it to be quite small as stated by van Kampen. The same may be said of Macleay's "rather large" choanæ, which on the contrary are rather small and almost exactly as figured by the Dutch author. The fingers and toes of the type specimen are considerably shrunken, which would account for Macleay's misleading statement that they are webbed. The colour marking of the type agrees in detail with Dr. van Kampen's illustration.

2. HYLOPHORBUS RUFESCENS, Macleay.

Macleay, Proc. Linn. Soc. N. S. Wales, ii., 1878, p. 136. Type locality: Katow, British New Guinea.

Boulenger, Ann. Mag. Nat. Hist. (6), xix., 1897, p. 12, pl. ii., fig. 3 (*Mantophyrne lateralis*). Typ locality: Mount Victoria, British New Guinea.

Mehély, Termész. Füzetek., xxiv., 1901, p. 220, pl. iv. and pl. v., and pl. x., fig. 4 (*M. lateralis*, Blngr).

The type specimen of this frog is in poor condition. The extremities have contracted considerably and the colour is quite bleached. Nevertheless it is sufficiently perfect to identify it with *Mantophryne lateralis*, Boulenger. It agrees in every detail except that the form is slightly more slender, while the two warts on the chin of Boulenger's specimen are not discernible. The lower jaw of the type has been crudely broken, showing the two dermal æsophageal ridges quite distinctly. The tympanum is now perfectly distinct. The characteristic tongue is exactly as described by Boulenger. The very fine, almost invisible vertebral fold is also present in Macleay's specimen. The colour is now quite bleached, but Macleay's original description agrees in all essentials with Boulenger's fine figure. Therefore, *Mantophryne lateralis*, Boulenger, becomes replaced by the earlier name *Hylophorbus rufescens*, Macleay. *Manto-*

* Doria, Ann. Mus. Civ. Genova, vi., 1874, p. 355, pl. xii., fig. K.

phryne microtis, Werner,* and *M. neuhaussi,* Vogt,† must also change their generic denomination accordingly, unless these species really belong to the genus Gnathophryne, Mehély,‡ founded on *M. robusta,* Boulenger.§

3. HYLARANA NEBULOSA, Macleay.

Macleay, Proc. Linn. Soc. N. S. Wales, ii., 1878, p. 137. Type locality: Cape York, North Australia.

Boulenger, Cat. Batr. Brit. Mus., 1882, 2nd ed., p. 64 (= *Rana papua,* Less.).

The identity of this form did not escape the acumen of Dr. Boulenger, who recognised it as synonymous with *Rana papua,* Lesson. Nothing remains to be said about it, as the type is in bad condition and is obviously the young of that species.

4. LITORIA GUTTATA, Macleay.

Macleay, Proc. Linn. Soc. N. S. Wales, ii., 1878, p. 137. Type locality: Katow, British New Guinea.

Boulenger, Cat. Batr. Brit. Mus., 1882, 2nd ed., p. 337 (footnote).

The type specimen of this frog is in a bad state, and is obviously very young. It differs from the young of *Hyla infrafrenata,* Günther (*H. dolichopsis auct*) only in the back being faintly granulated, recalling the condition of *H. gracilenta,* Ptrs. From the latter, however, it is separated by the condition of the webbing of the fingers, which does not extend to the discs on the second and fourth. There are about a dozen small round white spots on the back like those which spasmodically occur in *H. cærulea* and *H. infrafrenata.* I have no doubt that Macleay's specimen is simply an extremely young example of the latter species.

5. LITORIA DORSALIS, Macleay.

Macleay, Proc. Linn. Soc. N. S. Wales, ii., 1878, p. 138. Type locality: Katow, British New Guinea.

Boulenger, Cat. Batr. Brit. Mus., 1882, 2nd ed., p. 337 (footnote).

The type of this species is apparently not extant. With the Acting Curator's kind permission I was allowed to personally search the Macleay Museum, in which are contained the majority of Macleay's type specimens, but was unable to locate it.

Macleay's description is unintelligible. From the fact that the toes are webbed only at the base it is obviously not a Hyla. The "mouth opening beneath" and the presence of discs to the fingers suggest that it belongs to some

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* Werner, Zool. anz., xxiv., 1901, p. 102.

† Vogt, Sitz. Ges. nat. Freunde, 1911, p. 425.

‡ Mehély, Természz. Füzetek., xxiv., 1901, p. 225.

§ Boulenger, Proc. Zool. Soc., 1898, p. 480, pl. xxxviii., fig. 4.

disked Engystomatid genus, while the latter character, coupled with a basal web to the toes, points to Cornufer affinities. I can find no description which could reasonably be said to tally with Macleay's generalised characters. Taking these facts into account, the most satisfactory procedure will be to totally ignore the name *Litoria dorsalis*, Macleay, and to exclude it from future literature.

To Mr. John Shewan, Acting Curator of the Macleay Museum, I must express my deepest thanks for the many courtesies shown me on my not infrequent visits to the collections under his charge.

THE SCALES OF SOME QUEENSLAND FISHES.

By T. D. A. Cockerell, University of Colorado.

I am greatly indebted to Dr. R. Hamlyn-Harris for a very interesting series of scales of the fishes of Queensland. They not only belong to species, the scales of which have not been studied according to the methods of modern lepidology, but they are of interest as enabling us to see whether the fishes of the Southern Hemisphere differ markedly in scale characters from their allies in the North.

OSTEOGLOSSIDÆ.

Scleropages leichardti Günther. The large scales are reticulated and have beaded circuli, in the typical Osteoglossid manner. The structure of the scale is quite the same in *S. leichardti* from Queensland, *S. formosus* from Borneo, and *Osteoglossum bicirrosum* from Brazil, notwithstanding the wide geographical separation of these fishes. (*See also* Science, May 26, 1911, p. 831.)

HEMIRHAMPHIDÆ.

The scales in this family are much broader than long; nucleus central or nearly; apical margin simple; basal margin frequently lobulate; apical field covered with very fine and dense transverse circuli; basal half of scale with much more widely spaced circuli, which bend upwards laterally, and meet the circuli of the series above the nucleus, forming angles (often very acute angles) with them. Two or three basal radii are nearly always developed.

The Queensland species may be separated thus:—

Scales (which have a transverse diameter of 12 mm. or over) with very prominent basal lobes	*Hemirhamphus far* Forskal.
Scales without such basal lobes	1.
1. Scales with the circuli of the upper and lower halves regularly meeting at sides, forming acute angles ..	*Hemirhamphus quoyi* Cuv. & Val.
Scales with the circuli of the upper and lower halves not regularly meeting, usually separated at sides by a space free from circuli	*Hemirhamphus regularis* Günther.

One of the *H. quoyi* scales, apparently from the lateral line, has a large obtuse apical lobe. The species are not separated by very marked characters, and probably intermediate scales will be found. Indeed, the constancy of the type is shown by the fact that *Hyporhamphus unifasciatus,* from Woods Hole, Mass.

(U.S. Bureau of Fisheries), and Balboa, Panama Canal Zone (Meek and Hildebrand, U.S.N.M.), has scales which differ very little from those of *Hemiramphus quoyi*, though occasionally nearly as well lobed basally as *H. far*. Young scales of *H. unifasciatus* (and doubtless also of the species of *Hemirhamphus*) show the apical area without circuli, and the dense transverse circuli begin to form close to the line where the lower ones end.

It remains to be noted that, in addition to the features described, there is a minute sculpture which seems to be due to the cracking of the surface of the scale. In *H. unifasciatus* it takes the form of series of very fine lines which are usually more or less curved, and form semispiral systems which often cross, giving rise to a minute reticulation. In *Hemirhamphus quoyi* these lines are less frequent, and cross the fine circuli at right angles. In *H. regularis* there is produced a fine irregular reticulation between the circuli. In *H. far* there is often a much coarser and extremely irregular reticulation extending across the middle of the scale.

Cypsilurus scales (six species examined) are of the same general type as those of the Hemirhamphidæ, but less extreme, with the circuli usually vertical at the sides, and those of the upper and lower halves of the scale not widely different.

ATHERINIDÆ.

Scales of *Atherina* are longer than broad, with very prominent laterobasal angles and more or less straight sides. The apical margin is thin and without teeth; the basal margin is more or less prominently lobulate. There are no basal radii, but ray-like grooves or channels often extend upwards, gradually fading, from between the basal lobules. The basal half of the scale has fine transverse circuli, much as in Hemirhamphidæ, but the apical half is wholly without circuli, thus recalling the young of *Hyporhamphus unifasciatus*. There are very fine irregular lines due to cracking, as in the Hemirhamphidæ.

I have not seen enough material to be sure of the specific characters of the Queensland species, but they are apparently separable thus:—

Scales comparatively large, much broader than long, with about three very abrupt and prominent lobes close together at the middle of the straight basal side	*Atherina pinguis* Lacép.
Scales smaller, not so broad, not trilobed in middle of base	1.
1. Median basal lobe very prominent	*Atherina lacunosa* Forster.
Median basal lobe low and broad, not prominent	*Atherina honoriæ* Ogilby.

Atherina stipes Müller and Troschel, from Toro Point, Panama Canal Zone (Meek and Hildebrand, U.S.N.M.), has entirely the same generic characters in the scale. It is practically as in *A. pinguis*, the base trilobed, varying to two or one lobed. Occasional scales of both species are more or less clearly multilobed; this is especially to be noted in *A. pinguis*. One scale of *A. honoriæ* shows

a strongly lobulate or scalloped apical margin, which is a regular character of *Kirtlandia laciniata* and *Chirostoma crystallinum.*

Atherina scales differ from those of the other Atherinidæ studied—namely, *Atherinops, Kirtlandia, Chirostoma,* and *Menidia*—in the absence of circuli in the apical field, and of basal radii.

MUGILIDÆ.

Scales of *Mugil* are semicircular, or rather represent somewhat more than a half-circle, with a straight or nearly straight base. The genus *Liza,* which I had not before seen, differs at once by the quadrate scales, with straight sides, although the apical margin is rounded as in *Mugil.* The *Liza* scales before me are light green, perhaps owing to some peculiar condition of preservation.

Comparing the scales of *Mugil georgii* Ogilby, from Queensland, with those of the American *M. curema* C. & V., I find some marked differences, as follows:—

Ctenoid area largely developed, interrupting the circuli apicad of the nucleus; basal radii close together, subparallel or converging toward the margin .. .. *M. curema.*

Ctenoid area poorly developed, at least in some scales, so that many circuli may cross the apical field; basal radii (seven or fewer) diverging from the nuclear region, arranged in a fan-like manner .. .. *M. georgii.*

The matter of the ctenoid area is not to be taken very seriously, as *M. georgii* scales differ greatly; but the difference in the radii appears to be important, and indicates that *M. georgii* has the more primitive type of scale.

Mugil trichodon Poey, from Honduras (C. H. Townsend, U.S.N.M.), has scales very like those of *M. curema,* but with distinct laterobasal angles (these are obtusely rounded in *curema*) and the basal radii (except the middle ones) more spreading, but very irregular and unlike those of *M. georgii.* The laterobasal angles of *M. georgii* are as in *M. trichodon.* The *M. trichodon* scales differ from both the others in having a straight median groove running from base to apex, though not entering the broad papery apical margin, which is in a sense distinct from the scale proper.

The *Liza* scales are large, with extremely fine circuli, and radiating basal radii (5 or 6) like those of *M. georgii.* In the apical field the circuli are broken up into very fine irregular tubercles; in *L. splendens* de Vis (at least in the two scales before me) there is no ctenoid area at all; but in *L. waigiensis* Quoy and Gaimard the tubercles are seen to directly pass into dentiform ctenoid structures close to the margin, the teeth so formed being triangular, with a strong median ridge representing the original tubercle.

In *L. splendens* there is a thin papery apical fringe, as in *Mugil,* but it is crenate-margined, and divided by radial lines, which slightly enter the

substance of the scales. In both species there may be a rather irregular transverse radial line, crossing the middle of the scales but not reaching the extreme sides. In both, the laterobasal angles are practically right angles. The dimensions are—*L. splendens,* length 13, breadth 11½ mm.; *L. waigiensis,* length 11, breadth 10 mm.

HOLOCENTRIDÆ.

Holocentrus angustifrons Ogilby, from Queensland, has scales about 5½ mm. long and 8 broad, the apical margin with strong straight teeth; the sides sloping to the very broad base, the laterobasal angles therefore extremely prominent; the straight base with about four lobules, the ends of longitudinal ribs, near the middle. Circuli very fine, failing apically; region below the nucleus more or less pustulose. Except that the laterobasal corners project more, these scales agree with those of *H. diadema* Lacép., from Hawaii. The scales of the species of *Holocentrus* are on the whole very uniform.

PEMPHERIDÆ.

Pempheris multiradiatus Klunzinger. Scales of three sorts; it is noted on the label, "breast scales ctenoid." Scales broader than long, with a diameter of 3 to 4 mm. *Normal cycloid scales* broadly rounded apically, with a nearly central nucleus from which proceed, in a radiating manner, about five very distinct basal radii; basal margin deeply scalloped; laterobasal angles obtuse; basal half of scale with fine circuli, but these are absent from the apical field, which exhibits only growth lines. *Lateral line scales* are broader, and are without the basal radii and basal scallops; the basal margin is convex in the middle and concave sublaterally. The lateral line canal has a very broad bilobed appendage. The *ctenoid breast scales* are very different from the others, quadrate, with straight sides, but broader than long, the apical margin with numerous strong straight teeth. The basal radii and scallops are as in the first type of scale described. There is no ctenoid patch; the marginal teeth are exactly like those of *Holocentrus.*

I have scales of *Pempheris* (*? otaitensis*) from the Red Sea, which resemble the normal cycloid type described above, but are considerably broader, with the circuli continuous across the apical field.

Neopempheris ramsayi Macleay. Scales apparently *all* ctenoid, with a very well developed ctenoid patch. Scales about 3 mm. diameter, somewhat broader than long, subquadrate, nucleus a little above the middle; four or five very strong basal radii or folds, and basal margin very strongly scalloped; circuli very fine; ctenoid structure consisting of rows of elongate teeth. The apical teeth are much as in *Mullus,* but their bases are broadened, and the whole ctenoid area is confused, not beautifully distinct in all its details as in Mullidæ.

There is nothing in the scales of Pempheridæ to suggest association with the genus *Beryx*. *Pempheris*, however, strongly suggests *Holocentrus*. *Pempheris* is so different from *Neopempheris* as to suggest two distinct subfamilies, Pempherinæ for the first and Neopempherinæ for the second. *Bathyclupea* is separated by Jordan as a family Bathyclupeidæ.

CHEILODACTYLIDÆ.

Cheilodactylus nigricans Richardson. Scales subquadrate, broader than long, about 5 mm. long and 5½ broad; basal radii numerous (about 16); laterobasal corners very obtuse; nucleus a little above middle; circuli very fine and dense; a few circuli crossing above the nucleus, but most of the lateral circuli come to an end above, first curving slightly *outwards*. The scales are not at all ctenoid, and the apical field (covered with dark skin) has a pustular or perforate structure, somewhat suggestive of *Beryx*. *C. variegatus*, from Peru (P. O. Simons. U.S.N.M.), has similar scales, but larger, with the pustules larger in proportion, and not circular. It is clearly seen, in this species, that they represent broken-up apical circuli.

SERRANIDÆ.

Epinephelus estuarius Macleay, or **E. megachir** Rich. (the first name is on the list sent, but the second on the label of the specimens) has greatly elongated, parallel-sided scales, about 8 mm. long and 4 broad, with only a small apical portion covered by the black skin. The nuclear area is greatly elongated, extending down the middle of the scale, and consequently the strong basal radii, arranged fanwise, 8 or 9 in number, begin below the middle of the scale, often far below. The basal margin is crenate. The ctenoid patch is very well developed, and the marginal teeth are broadened at the end, and truncate. These scales differ from those of *E. niveatus* (Cuv. & Val.) by the proportionately smaller and truncate teeth, and especially by the elongated nuclear area; but my examples of *E. niveatus* are probably young. The scales of *Epinephelus* closely resemble those of *Paralabrax*, but those of the latter are less elongated. The scales of *Centropristes*, *Morone*, *Roccus*, *Percichthys*, and *Plesiops* are not elongated.

LUTIANIDÆ.

Lutianus sebæ Bloch. Scales subquadrate, about 12 mm. long and broad; laterobasal corners rounded; about 20 strong basal radii; ctenoid patch very distinct, apical teeth pointed, sometimes slightly bifid at end; submarginal elements like short phalanges.

Lutianus johnii Bloch. Scales about 5½ mm. long and broad; basal radii 9 or less; ctenoid structures as in *L. sebæ*. These scales are perhaps immature. In general, the two species agree very closely in their scales, and also agree nearly with *Neomænis griseus* (L.) from Tampa, Florida. The *Neomænis*,

however, has more than twice as many basal radii as *L. johnii,* in scales of about the same size. The *Neomænis* has minutely beaded basal circuli, and both the species of *Lutianus* show exactly the same feature.

The scale of *Kuhlia rupestris* C. & V. (Kuhliidæ), from Mauritius, is extremely like that of *Lutianus,* except that it has more prominent laterobasal angles, and the submarginal elements of the ctenoid patch are somewhat longer. They are distinguishable, but from the scales alone I should have supposed them to be closely allied members of one family.

SPARIDÆ.

Pagrosomus auratus Forster. Scales about 19 mm. long and 21 broad; subquadrate, with convex (bulging) sides, and crenate lower margin; nucleus above the middle; about 9 distinct basal radii, arranged fanwise; basal circuli minutely beaded; ctenoid patch large, but the elements mostly ill-defined, those near the margin distinct, and very short, some broader than long; marginal teeth sharply pointed. Sparsely scattered over the ctenoid patch are black dots or minute streaks, which appear under the compound microscope to be little canals with round openings. This last feature strongly suggests the perforations of the same region in *Beryx.*

Sparus sarba Forskal. Scales reddish, very broad, about 7½ mm. long and 10½ broad; basal radii about 14, widely spreading. Structure as in *Pagrosomus,* but shape different.

Lethrinus harak Forskal. Scales about 6½ mm. long and broad, thus differing from *Pagrosomus* in the opposite direction from *Sparus.* Basal radii about 15. Structure as in the other genera, with the same scattered perforations in the ctenoid area; but the subapical ctenoid elements are quite different, being elongated, consisting of a stick-like central rib, with a margin of nearly equal width on each side of it.

I find that the scales of *Dentex vulgaris,* from England, show scattered perforations in the ctenoid area, just as in the Australian Sparidæ. The ctenoid patch of *Dentex* has a honeycomb-like pattern.

THERAPONIDÆ.

Therapon jarbua Forskal. Boulenger lists *Therapon* as a genus of Lutianinæ. The scales are subquadrate, longer than broad; length about 2½ mm., breadth about 2; sides parallel; laterobasal corners rectangular; nucleus above middle; about 9 strong basal radii; lower margin scalloped; basal circuli minutely beaded; lateral circuli rather coarse; ctenoid patch well developed; apical teeth sharp; subapical elements of ctenoid patch short; the ridge or keel running down the teeth is continued on to the elements below, so that the ctenoid area presents a series of radiating ridges.

These scales do not closely resemble those of *Lutianus*. They are also unlike the scales of the Sparidæ. They do, however, quite closely resemble the scales of *Paralabrax*.

KYPHOSIDÆ.

Kyphosus cinerascens Forskal. Scales subquadrate, broader than long, a large one about 8½ mm. long and a little over 10 broad; 7 to 9 strong basal radii; basal margin scalloped; basal circuli finely beaded; ctenoid patch well developed; marginal teeth sharp; submarginal elements of ctenoid patch longer than broad, broadened at base. The lowermost part of the skin-covered area shows coarse irregular dendritic markings, consisting of ridges which are directly connected with those of the ctenoid patch, leading to the marginal teeth. The scales of *Kyphosus sectatrix* (L.), from Massachusetts (Menemsha Bight), are somewhat modified from this type, but the essential generic characters are quite the same. The thickened perforated band which crosses the middle of the scale of *K. sectatrix* is rather indistinctly indicated in *K. cinerascens*, representing in fact the denser basal part of the dendritic area.

SILLAGINIDÆ.

Sillago maculata Quoy and Gaimard. Scales subquadrate, broader than long, about 3 mm. long and 3½ broad; *nucleus subapical*; seven or eight very distinct basal radii, spreading fanwise; basal margin scarcely at all scalloped; laterobasal corners rectangular; only about every third of the basal circuli continued to the sides, the lateral circuli consequently widely spaced; marginal teeth very sharp; ctenoid patch a mere narrow band, with only about two distinct elements below the teeth (at the sides one or none), these very short and broad.

These scales suggest those of the Gobiidæ, which are, however, of a more extreme type. In *Ctenogobius virgatulus* (Jordan & Snyder), from Japan, I find the basal circuli, many of them, stopping short at the beginning of the lateral field. There is a close resemblance between the scales of *Sillago* and those of some Sciænidæ, in which the nucleus is far toward the apex. A very good example is found in *Menticirrhus saxatilis* Bl. & Schn., from Woods Hole, Massachusetts. Boulenger remarks that the Sillaginidæ connect the Serranidæ with the Sciænidæ. The scales suggest that the affinity is closest with the Sciænidæ.

POMACENTRIDÆ.

Glyphisodon palmeri Ogilby. Scales subquadrate, broader than long, a large one about 8 mm. long and 8½ broad; about 8 or 9 strong basal radii; basal margin scalloped; circuli extremely fine; ctenoid area well developed;

marginal teeth sharp; below the etenoid area is a broad region covered with reticulations and dendriform markings, obviously consisting of modified circuli, and connecting at sides with the lateral circuli. The canal of the lateral line scales has some irregular branches at its apical end. The submarginal elements of the etenoid patch are much longer than broad.

This scale is in all respects very similar to that of *Abudefduf saxatilis* (L.), from Soroceo Island, but the *Glyphisodon* scales can be distinguished by the conspicuously developed reticulated or dendriform area, the marking of this region in the *Abudefduf* being minute and labyrinthiform. *Abudefduf* has also broader scales than *Glyphisodon*, while those of *Eupomacentrus leucostictus* (Müll. & Troseh.) are much broader than those of *Abudefduf*.

LABRIDÆ.

Chœrodon venustus de Vis. Scales subquadrate, about 17 mm. long and 15 broad; basal radii very numerous, about 36, many ending on the lateral margins; basal margin hardly at all scalloped; circuli (lateral and basal) extremely fine; apical margin thin, not etenoid, with numerous fine longitudinal radii.

Pseudolabrus gymnogenis Günther. Scales similar in form to those of the last, about 16 mm. long and 14 broad; structure also as in the *Chœrodon*, except that the broad nuclear region is covered with irregular reticulations, which are only weakly developed in the *Chœrodon*.

In *Chœrodon*, the very numerous apical radii have the appearance of widely spaced circuli, and with a lens appear to be actually continuous at the sides with the lateral circuli. The compound microscope shows that this is not really the case; and in *Pseudolabrus* the apical lines are directly continuous into the reticulated patch, which on the other side is continuous with the basal radii. The whole, therefore, belongs to the radial system.

Eupetrichthys angustipes Ogilby. Scales parallel-sided, longer than broad, but not greatly so; length about 6 mm.; basal margin convex, not scalloped; basal radii about 25, of which about four on each side end on the lateral margin; apical radii well developed, no closer than the basal, and hence very different from those of the other two genera described above. No reticulated discal area. Lateral line canal with numerous stout branches at the apical end, each ending in a perforation of the minutely spotted skin, and having one or more smaller round perforations in its course. (Compare Günther's figure of the scale of *Labrichthys*.)

All these scales have the form and structure characteristic of the Labridæ. Those of *Chœrodon* and *Pseudolabrus* are in general much like those of *Iridio bivittatus* Bloch, from Key West, Florida, and *Tautogolabrus adspersus* (Walb.);

but *Iridio* has the apical radii more widely spaced, while *Tautogolabrus* has them almost entirely obsolete.

The scales of *Eupetrichthys* are very like those of *Emmeckia venusta* (Jenkins & Evermann), from the Gulf of California.

GOBIIDÆ.

Hypseleotris compressus Krefft. Scales about $2\frac{1}{2}$ mm. long and $3\frac{1}{3}$ broad, of perfectly typical Gobiid type, with the nucleus subapical, the apical margin (except in latinucleate scales) raised and roof-like in outline, &c. The structure is as in the Japanese *Ctenogobius virgatulus,* but the middle of the apical margin is less elevated. Gobiid scales, wherever they come from, are very characteristic, and very much alike.

NOTOTHENIIDÆ.

Parapercis cylindrica Bloch. Boulenger places this in the Leptoscopidæ; I follow the labelling of the Queensland Museum. Scales subquadrate, a little broadened basally; length and breadth about 2 mm.; nucleus not far from apex; basal radii about ten, strong, spreading; basal margin weakly scalloped; basal circuli very dense: lateral circuli much fewer and coarser; apical teeth large and sharp; subapical ctenoid elements well defined, broader than long, about four rows distinct.

It is a singular thing, that the ctenoid features of this scale, including the submarginal elements, *exactly* agree with those of certain Percidæ, as for example *Hadropterus peltatus,* from North Carolina. The whole scale is, in fact, very like that of Percidæ. On the other hand, the scales of *Parapercis* are not very unlike those of the Scorpænid genus *Sebastodes,* from California.

It will be seen from all of the above, that the scales of Southern fishes closely resemble those of their Northern relatives. On the whole, the present paper serves strongly to confirm the validity of scale characters, showing that family and generic characters hold good over the world.

EDIBLE FISHES OF QUEENSLAND.

Part I.—Family PEMPHERIDÆ.

By J. Douglas Ogilby (Ichthyologist).

Les Pemphérides Cuvier & Valenciennes, Hist. Nat. Poiss., vii, 1831, p. 296.

Kurtina part., Günther, Brit. Mus. Catal. Fish., ii, 1860, p. 508.

Kurtidæ part., Günther, Zool. Rec., vii, 1870, p. 91 (name only)* ; Day, Fish. India, pt. 2, 1876, p. 174.

Pempheridoidei Bleeker, Atlas Ichth., ix, 1877, p. 5.

Pempheridæ Jordan & Evermann, Fish. North & Mid. Amer., pt. 1, 1896, p. 977.

THE BULLSEYES.

Body strongly compressed, covered with moderate or small scales. Lateral line extending on the caudal fin to the tips of the middle rays, the tubes simple and straight, not extending to the border of the scale. Head almost wholly scaly, with short snout and narrow preorbital, the mucous system well developed. Mouth terminal and little protractile, with wide, very oblique cleft, the premaxillaries forming the entire dentigerous border of the upper jaw ; no supramaxillary. Dentition weak ; small teeth always present on the jaws, vomer, and palatines. Nostrils double, superolateral, contiguous, open, nearer to eye than to tip of snout. Eyes lateral. Bones of head feebly armed. Dorsal fin single, short, falciform, the spines slender and graduated, adnate to one another and to the first and longest ray ; no procumbent spine in front of the dorsal. Caudal more or less emarginate, with pointed lobes and scaly base. Anal much longer than the dorsal, the spines short, stout, and separate. Pectorals asymmetrical, inserted below the middle of the body. Ventrals thoracic, approximate, pointed, with i 5 rays, inserted below the pectorals. Gill-openings wide, gill-membranes separate, free from the isthmus ; pseudobranchiæ present ; gills four, a slit behind the fourth ; gill-rakers spinulose ; pharyngeal bones separate. Stomach cæcal ; intestinal canal convoluted. Premaxillary processes short ; supraoccipital crest high and delicate ; coracoids much dilated ; scapula with a small foramen. Vertebræ 24 (10 + 14) ; the caudal rather elongate ; ribs normal, narrow and compressed ; the anterior sessile, the last five inserted on well developed parapophyses. (περμφηρίς ; a small fish, now unidentifiable, quoted by Athenæus from Numenius.)

* Not having access to the work in which Steindachner published his description of *Parapriacanthus* I am unable to say whether he was the first author to associate *Kurtus* and *Pempheris* under the family name *Kurtidæ*, but such is possibly the case.

Distribution :—

Small aberrant percomorphous fishes from the tropical and temperate zones of the Indian, Pacific, and West Atlantic Oceans, but not so far reported from the Mediterranean or West African Seas. While mostly inhabitants of the inshore waters, some species descend to a moderate depth, the greatest yet recorded being between 40 and 52 fathoms, at which depth specimens of *Liopempheris multiradiata* were trawled by the Endeavour off Bellinger Head, New South Wales.* This should, therefore, be taken as the limit of the ascertained bathymetrical range of the *Pempheridæ* up to the present time.†

The Indo-Pacific branch of the family appears to have originated in the Austro-Malayan subregion, whence it has spread northward to China, Japan, and the Caroline Islands ; westward through the seas of India to the Red Sea, the East Coast of Africa (Zanzibar), and Mauritius ; eastward through the Pacific Islands (Tahiti, Kingsmill, Samoa) to the West Coast of Mexico (Acapulco) ; and southward to south-eastern, southern, and south-western Australia, Tasmania, and even New Zealand. Between this southern colony and the Moluccas there is, however, a nominal break of some 3,000 miles, including necessarily the entire coast-line of Queensland, from which, up to the present, no pempherin has been recorded. That this break, which is partly bridged over by the occurrence of an outlying species at Lord Howe Island, is rightly called "nominal" is certain, since two of the Moluccan species—*Pempheris oualensis* and *P. vanicolensis*—extend their range to the South Sea Islands, and are, therefore, probably found along the seaboard of intertropical Australia. The third Moluccan species—*P. macrolepidota* (Schneider)—also belongs to the typical genus. But, as might be conjectured, the further we get away from the metropolis of the group, the more liable we are to find characters, inconsistent with its original purity, developing in the species. It is not, therefore, astonishing that, of the four species, which inhabit the south-eastern corner of Australia, one only — *P. compressa* (Shaw) ‡— retains the typical characters ; two others — *P. multiradiata* Klunzinger and *P. affinis* McCulloch—have developed in themselves distinct characters, on which I propose to establish the genus *Liopempheris* ; the fourth—*P. elongatus* McCulloch—belongs to Steindachner's genus *Parapriacanthus*.

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* In another haul the Endeavour secured specimens of the same fish on the ocean slope between Port Stephens and Newcastle at a depth of from 22 to 60 fathoms, but obviously it would be unwise to insist on the higher figure, since the inference is, that a fish, which occurs at a depth of one or two fathoms in Port Jackson, would more probably be taken near the inshore end of the drift in the same district.

† In this connection it is worthy of note that the family is not mentioned in Goode & Bean's standard work "Oceanic Ichthyology," nor does it occur in the Challenger, Hirondelle, Blake, Albatross, and Investigator Reports. It is only on coastwise trawlers, such as the Endeavour and Thetis, that this family appears.

‡ Even this species Snyder has associated with the Japanese *P. umbra* in a genus *Catalufa*, which, however, I am unable to recognise as distinct.

The distribution of this genus is most remarkable, as it may be said to have developed ontogenetically along the outposts of the group; first noticed from Japanese seas in 1870, it reappeared during the following year in the Red Sea under the new generic name *Pempherichthys*; next, after an interval of eighteen years, a third species was described from Lord Howe Island; and finally, after a further interval of thirteen years, South-Eastern Australia has yielded us yet a fourth species.

The Atlantic group has followed a somewhat similar but much more restricted line of development. Only three, possibly two, species are recognised, namely—*P. schomburgki* Müller & Troschel, *P. mulleri* Poey, and *P. poeyi* Bean; all are natives of Cuba, which should, therefore, be accepted as the centre of Atlantic development, from which *P. schomburgki* has sent out a branch to Barbados, and *P. mulleri* (which is possibly inseparable from the preceding species) another as far as the Coast of Brazil. A reference to the key given below will show that the third Atlantic species, *P. poeyi*, is excluded from the genera therein recognised by reason of its shortened anal fin, and is apparently developing along the same line as *Parapriacanthus*; unfortunately neither Bean nor Jordan & Evermann make any specific mention of the lepidosis of the anal fin, the inference being that it is scaly. If by chance Fowler's *Priacanthopsis*, which I have been unable to refer to, be founded on this species, I should be inclined to raise it to full generic rank.

The family, as here constituted, consists of four (or five) genera and twenty-one (or twenty-two) species.

Key to the Subfamilies and Genera.

PEMPHERINÆ :—Lateral line tubes short and wide; eye large, without adipose lid; preorbital entire; maxillary greatly dilated distally; pterygoids and tongue smooth; dorsal premedian; anal low, originating below or behind dorsal; branchiostegals seven; gill-rakers numerous and long; air-bladder large, constricted anteriorly; pyloric cæca well developed; vertebræ increasing in length posteriorly.

a^1. Body ovate; preopercle with one to three strong spines at the angle; teeth in the jaws pluriserial; anal scaly, with more than 30 soft rays.

b^1. Body scales cycloid and caducous; dorsal rays v 10 to 13 .. **1. Liopempheris.**

b^2. All the scales ctenoid and persistent; dorsal rays (v or) vi 9 or 10.. .. .. **2. Pempheris.**

a^2. Body subovate; preopercle entire; teeth in the jaws uniserial; anal naked, with less than 30 rays .. .. **3. Parapriacanthus.**

LEPTOBRAMINÆ :—Lateral line tubes long and narrow; eye small, with well developed adipose lid; preorbital serrulate; maxillary spatulate, feebly dilating from the front: pterygoids and tongue toothed; dorsal postmedian; anal falciform, originating well in advance of the dorsal; branchiostegals six; gill-rakers few and short; no air-bladder nor pyloric cæca; vertebræ of similar length throughout.

c^1. Body elliptical; scales small and ciliated; lower limb of preopercle serrulate .. .. **4. Leptobrama.***

LEPTOBRAMA Steindachner.†

Leptobrama Steindachner, Sitz. Akad. Wien, lxxviii, i, 1878, p. 388 (*mülleri*).

Neopempheris Macleay, Proc. Linn. Soc. N. S. Wales, v, 1880, p. 517 (*ramsayi* = *mülleri*).

Body elliptical. Scales small, persistent, ciliated, very finely and concentrically striated, with a broad roughened inframarginal band, arranged in regular series, those of the head, nape, and breast much smaller than the body-scales. Lateral line with a distinct curve anteriorly. Head small and conical, the snout obtusely pointed, naked ; cleft of mouth curved ; maxillary slender. Jaws with several series of small reflexed cardiform teeth, which increase in size from without, the inner mandibular series largest ; a diamond-shaped patch of small sharp teeth on the head of the vomer ; palatines with a band of similar teeth ; ectopterygoids, entopterygoids, and tongue, each with a large ovate patch of still smaller villiform teeth. Eyes anterior. Lower limb of preopercle serrulate, the angle, produced in a broad membranaceous flap, but without armature ; no opercular spine. Dorsal fin with iv 16 to 18 rays, anal with iii 26 to 30 ; caudal deeply emarginate ; pectoral short and obtusely pointed, with 17 rays, the second simple, strongly compressed, and laterally expanded : ventrals rather small. Branchiostegals six, three on each epihyal and ceratohyal‡; gill-rakers rather stout ; pharyngeal bones armed with strong recurved teeth, except the outer upper pharyngeal, which is mostly naked, while the teeth of the middle bone are exceptionally strong. (λεπτός, slender ; *Brama*.)

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* The presence of a persistent pneumatic duct to the air-bladder and the position of the ventral fins fully justifies the exclusion of *Bathyclupea* from the *Pempheridæ*, as insisted on by American ichthyologists. The same characters also exclude it from the *Berycomorphi*. With regard to the subjugular and degenerate ventrals of *Bathyclupea* it is worth noting that, although the anal is similarly advanced in *Leptobrama*, the ventrals retain their normal position below the pectorals, as well as their normal development ; this should be a strong point in favor of the separation of the two families. Since writing the above Regan (Ann. & Mag. Nat. Hist. (8) xii, 1913, p. 117) has followed Gill (in Goode & Bean, Ocean. Ichth., 1895, p. 190) in recognizing the *Bathyclupeidæ* as a distinct family, but dissociates them wholly from the *Berycoidei*, placing them among the *Percoidea* near *Lactarius*.

† It is due to the researches of Mr. McCulloch that I am privileged to record for the first time the identity of *Neopempheris* with *Leptobrama*. Under date 10-v-13 he writes—"*Neopempheris ramsayi* = *Leptobrama mülleri* Steind., who figures it beautifully in Denk. Ak. Wiss. Wien, xli, 1879, pl. iii, fig. 1. His figure might be made from Ramsay's specimen, it agrees so well." Also—"I have a large specimen nearly 300 millim. from Fremantle." I herein, therefore, tender my thanks to Mr. McCulloch for so courteously placing before me these new facts in time for inclusion in my paper, since his own "Note on Leptobrama . . . will not be published until after your Memoirs."

‡ In *Pempheris compressa* there are two on the epihyal and five on the ceratohyal.

Small fishes from the seas of Australia and Southern New Guinea, occurring sporadically. Nothing is known as to the habits, breeding, food, and bathymetric distribution of this remarkable fish, which, so far as our present knowledge goes, appears to visit our shores only at long and irregular intervals. From its form, dentition, the normal size of the eyes, etc., coupled with the fact that, though captured near the shore, none of the specimens which have fallen into expert hands exhibit any signs of breeding, one might incline to the opinion that these fishes are pelagic, habitually inhabiting the open sea near the surface. The capture, however, by the Bevan expedition of a specimen well up the waterway of the Aird River, British New Guinea, apparently demolishes the pelagic theory, while supporting that of the surface-swimming, since the example in question jumped into the boat of its own accord.

Two species have been described as belonging to the genus *Leptobrama*, but a more extended acquaintance with these fishes shows that the differences are either individual or sexual, probably the latter.

LEPTOBRAMA MÜLLERI Steindachner.

Leptobrama mülleri Steindachner, Sitzb. Akad. Wien, lxxviii, i, 1878, p. 388 : Coast of Queensland—id., Denks. Akad. Wien, xli, i, 1879, pl. iii, figs. 1 to 1c—Klunzinger, Sitzb. Akad. Wien, lxxx, i, 1879, p. 381.

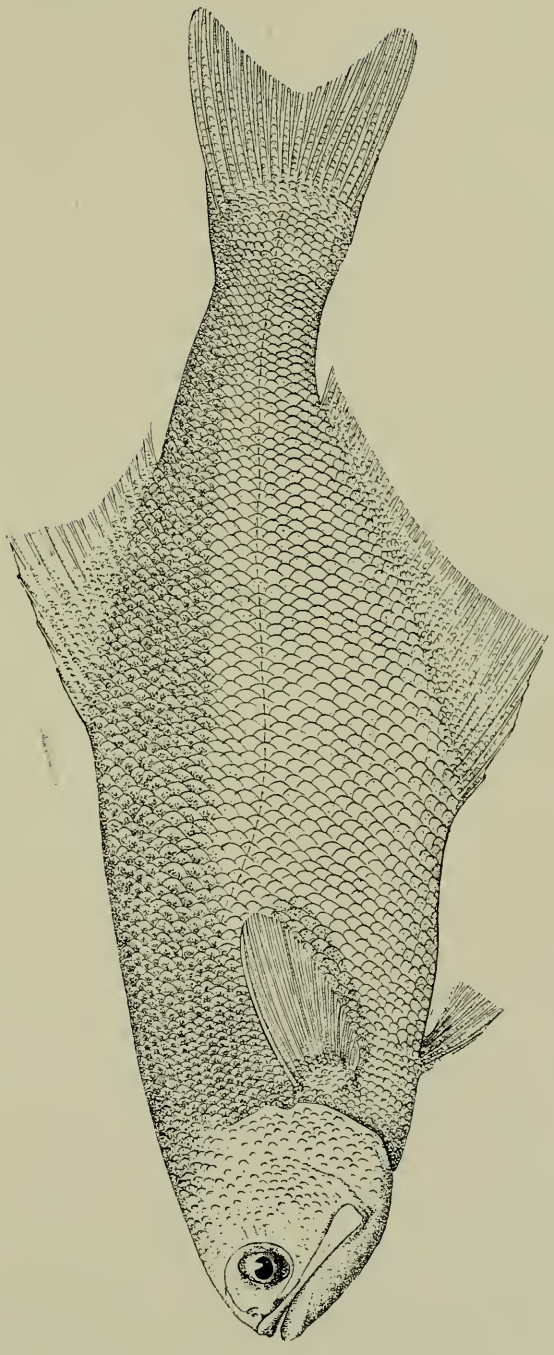
Neopempheris Ramsayi Macleay, Proc. Linn. Soc. N. S. Wales, v, 1881, p. 517, pl. xiv : Rockingham Bay, Q.

Neopempheris pectoralis Ramsay & Ogilby, Proc. Linn. Soc. N. S. Wales, xii, 1887, p. 563 : Aird River, B.N.G.

(Plates XVIII, XIX.)

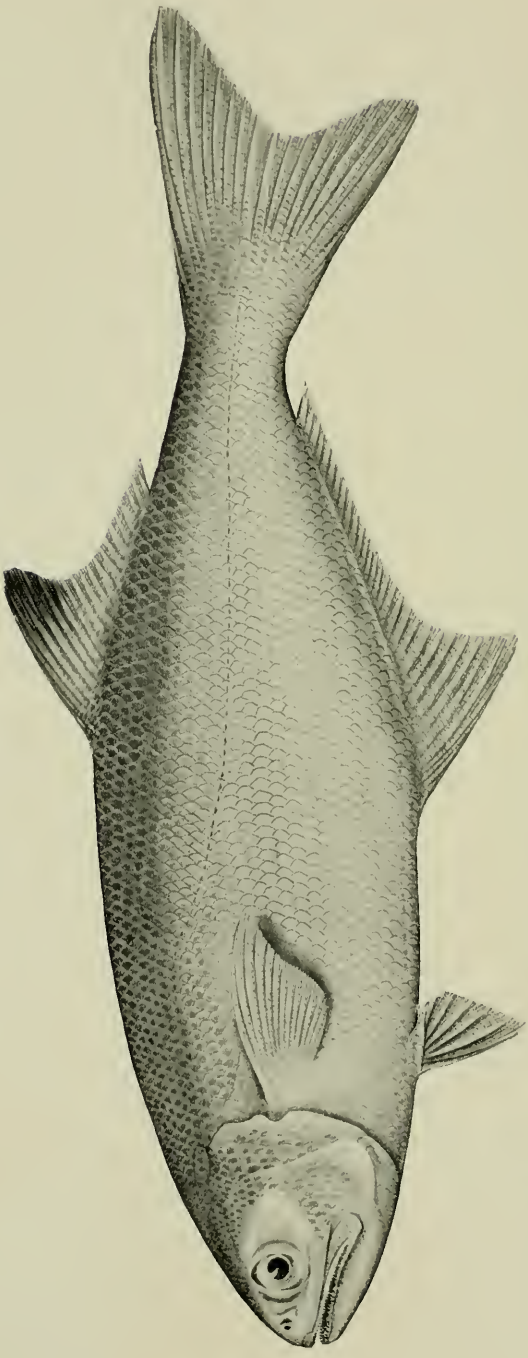
Depth of body 2·85 to 3·3, length of head 4·33 to 4·5, of caudal fin 3·8 to 4·15, of pectoral 4·95 to 5·45, of ventral 8·15 to 8·6 in length of body. Length of snout 4·5 to 5·15, diameter of eye 3·7 to 4·25, width of interorbit 3·75 to 4·55, length of maxillary 1·5 to 1·7, longest dorsal ray 1·2 to 1·33, longest anal 1·25 to 1·35 in length of head.

Ventral contour of body somewhat less to somewhat more arched than the dorsal, which is gently rounded or linear and feebly acclivous between the forehead and the dorsal fin ; width of body 2·95 to 3·6 in its depth, which is greatest immediately in front of the anal fin and ·33 to ·5 more than the length of the head : caudal peduncle ·3 to ·45 longer than deep, its least depth 3·1 to 3·25 in the depth of the body. Width of head 1·85 to 2·05, depth of head 1·15 to 1·25 in its length. Snout with rounded profile, its length 1·1 to 1·4 in the eye-diameter, the two combined 1·15 to 1·45 in the postorbital portion of the head ; interorbital region strongly convex, its width from one tenth more to one fifth less than the eye-diameter ; adipose lid extending well on the snout and the postorbital region, but not quite reaching the



LEPTOBRAMA MÜLLERI Steindachner; ♀. ⅔ Nat. Size.

D. B. Fry, del.



LEPTOBRAMA MÜLLERI Steindachner; ♂. ⅔ Nat. Size.

A. R. McCulloch, del.

pupil before or behind ; anterior nostril ovate, posterior arcuate and much wider. Jaws equal ; maxillary extending far beyond the eye, the width of its rounded distal extremity 7·4 to 7·75 in its length.

Scales 10 to 12/75 to 77/12 or 13. Axillary scales of pectoral and ventral subequal, as long as or longer than the snout. Lateral line varying from a rather long and shallow curve, which extends far beyond the tip of the pectoral, to a much shorter and deeper one, which just reaches that point.

D. iv 16 to 18 ; A. iii 26 to 30. Origin of dorsal fin ·15 to ·25 nearer to the root of the caudal than to the tip of the snout ; spines rather strong and pungent, the last 1·3 to 1·4 in the first ray. Middle caudal rays 1·55 to 1·75 in the upper and slightly longer lobe. Anal fin as high as or slightly lower than and from ·5 to ·66 longer than the dorsal, originating in advance of the middle of the body. Pectoral with 17 rays, as long as or longer than the head without the snout, the fourth ray longest. Ventral spine long, but weak and flexible, the outer ray longest, 1·85 to 2 in the length of the head and 1·9 to 2·15 in its distance from the anal, which is 1·05 to 1·25 in that from the tip of the mandible.

Gill-rakers 3 or 4 + 6 or 7, with one or two rudiments on each branch, the longest 1·9 to 2·3 in the eye-diameter and 1·33 to 1·6 in the longest fringes.

Silvery, with the back steel-blue, the line of demarcation well defined. Fins dusky, the produced portion of the dorsal lobe with or without a black or dark chestnut brown blotch. (Named after Baron Ferdinand von Müller, a celebrated Australian botanist.)

Variation :—So far as our limited series of specimens goes the two forms of this fish, which may be distinguished by the spotted or uniform dorsal fin, vary constantly in the following characters, which will, I believe, eventually prove to be sexual. In the spotted form, which I take to be the male, the body is noticeably more slender, the pectoral shorter, the forehead wider, the lateral line longer and less arched, etc.

Total length :—300 millim.

Range :—Coasts of Australia and Southern New Guinea, occurring sporadically. The localities from which specimens have been recorded are—Coast of Queensland (Steindachner) ; Rockingham Bay, Q. (Macleay) ; Moreton and Keppel Bays, Q. ; Fremantle, W.A. (McCulloch) ; and Aird River, B.N.G., 30 miles above its mouth (Ramsay and Ogilby, *fide* Bevan).

Described from four specimens (Keppel Bay, one male, 270 millim., presented by Mr. W. N. Jaggard, and Moreton Bay, three females, 206 to 266 millim., of which no data are obtainable) in the collection of the Queensland Museum. I had previously examined Macleay's type, and of course that of *Neopempheris pectoralis*.

NOTE.—In a letter just received by Dr. Hamlyn-Harris Prof. T. D. A. Cockerell, of the University of Colorado, suggests the advisability of separating *Leptobrama* as a subfamily from the other *Pempheridæ*. This conclusion was arrived at from an examination of the scales of *Liopempheris multiradiatus* and *Leptobrama mülleri*. This unexpected confirmation of my previous action is highly gratifying. (See Cockerell, p 55.)

LIST OF THE AUSTRALASIAN PEMPHERIDÆ.*

i. LIOPEMPHERIS Ogilby, ut supra, p. 62 (*multiradiata*).

1. MULTIRADIATA Klunzinger, Sitz. Akad. Wien, lxxx, i, 1879 (1880), p. 381: King George's Sound = *macrolepis* Macleay 1881 = *lineatus* Ogilby 1886. Fig.—Waite, Thetis, pl. x. South-Eastern Australia from Bellingen Heads, N. S. Wales, to off Kingston, S.A.†

2. AFFINIS McCulloch, Zool. Res. Endeavour, pt. 1, 1911, p. 45, pl. vii, fig. 1 : Port Jackson to Newcastle.

ii. PEMPHERIS Cuvier & Valenciennes, Hist. Nat. Poiss., vii, 1831, p. 296 (*oualensis*) = *Priacanthopsis* Fowler, 1906 (?) = *Catalufa* Snyder 1911.

3. COMPRESSA Shaw, in White, Voy. N. S. Wales, 1790, p. 267, pl.— fig. Port Jackson. Metropolitan District of New South Wales.†

4. KLUNZINGERI McCulloch, ibid., p. 47 : King George's Sound = *mülleri* Klunzinger (not Poey 1860).

5. *macrolepidota* Schneider, in Bloch, Syst. Ichth., 1801, p. 164. (?) = *mangula* Cuvier & Valenciennes 1831 = *moluca* idd. = *malabarica* idd. Fig.—Bleeker, Atlas Ichth., pl. ccclxxxiii, fig. 2. Moluccas to India, China, and Japan; Red Sea and Zanzibar.‡

6. *oualensis* Cuvier & Valenciennes, ibid., p. 299 : Ualan = *otaitensis* idd. = *adusta* Bleeker = *mangula* Günther 1874 (not Cuvier & Valenciennes). Fig.—Bleeker, ibid., figs. 1, 4, & 5; Günther, Godeffroy Mus., pl. lix, fig. B. Moluccas to Malaysia, Carolines, New Guinea, and the South Sea Islands (Tahiti, Samoa, Kingsmill, etc.).

7. *vanicolensis* Cuvier & Valenciennes, ibid., p. 305 : Vanicolo = *nesogallica* idd. Fig.—Bleeker, ibid., fig. 6. Moluccas to Vanicolo, Samoa, and Mauritius.

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* All the species mentioned in this list are liable to occur on some part of the Australian or Tasmanian Coasts.

† Both these species are included in the list of West Australian Fishes published by Mr. Malcolm Fraser in 1903, but further information is requisite before these records can be accepted.

‡ The species printed in italics have not as yet been recorded from Australian Seas.

8. *analis* Waite, Trans. N. Z. Inst., xlii, 1910, p. 375: Kermadec Islands.

iii. PARAPRIACANTHUS Steindachner, Sitz. Akad. Wien, xli, 1870, p. 623 (*ransonneti*) = *Pempherichthys* Klunzinger 1871.

9. *unwini* Ogilby, Mem. Austr. Mus., ii, 1889, p. 60, pl. iii, fig. 1 : Lord Howe Island.

10. ELONGATUS McCulloch, ibid., p. 47, pl. iv, fig. 1 : Flinders' Island, Bass Strait, to Wilson's Promontory, Vic.

iv. LEPTOBRAMA Steindachner, ibid., lxxviii, i, 1878, p. 388 (*mulleri*) = *Neopempheris* Macleay 1881.

11. MÜLLERI Steindachner, ibid., pl. iii, fig. 1 : = *ramsayi* Macleay 1881 : = *pectoralis* Ramsay and Ogilby 1887. Coasts of Australia.

NOTE.—In my article on *Polynemus specularis* de Vis* I wrote re *Polynemus multiradiatus* Günther—"I do not know what Klunzinger's fish of the same name may be." I am quite satisfied now that this sentence was penned through my mentally confusing Günther's species with *Pempheris multiradiata* Klunzinger.

PART II.—THE GADOPSEIFORM PERCOIDS.

(Plate XX.)

In Mr. Tate Regan's masterly paper on the "Classification of the Percoid Fishes,"† he diagnoses the gadopseiform percoids as follows:—

DIVISION GADOPSEIFORMES.

"*Gadopsis* scarcely differs from the Perciformes in osteology, but there is no mesopterygoid and there are 2 radials on the hypercoracoid and 2 on the hypocoracoid. The pelvic fins are jugular, each reduced to a small spine and a bifid ray. Against Blennioid relationships are the intervention of the prootic between the parasphenoid and the alisphenoid, the 3 anal spines, the dorsal and anal rays more numerous than the corresponding myotomes. Vertebræ 21 + 26; ribs, except the first 2 or 3, on strong parapophyses."

The position here allotted to *Gadopsis* is much more satisfactory than that assigned to it by previous authors.

FAMILY GADOPSEIDÆ.

Blenniidæ part. Richardson, Zool. Erebus & Terror, ii, 1848, Ichth., p. 122.
Gadopsidæ Günther, Brit. Mus. Catal. Fish., iv, 1862, p. 318.

Body elongate-elliptical to elongate, more or less compressed, covered with minute, adherent, concentrically striated, cycloid scales. Lateral line continuous,

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* Ann. Queensl. Mus., No. 10, 1911, p. 45.
† Ann. & Mag. Nat. Hist. (8) xii, 1913, p. 135.

not extending on the caudal fin, the tubes long and simple. Head almost wholly scaly, with rather long, obtusely pointed snout, the mucous system well developed. Mouth terminal, with moderate oblique cleft, the upper jaw projecting; premaxillaries forming the entire dentigerous border of the upper jaw, the maxillaries exposed and dilated distally. Jaws with a pluriserial band of small cardiform teeth, the outer series much enlarged, widely set, and conical; a patch of small teeth on the head of the vomer, and a band of even smaller ones on the palatines; pterygoids and tongue smooth. Two moderate, widely separated nostrils on each side, the anterior tubular. Eyes small, anteromedian, lateral. Opercle with a small, flat spine. Vertical fins naked, with the posterior rays increasingly crowded. One long dorsal fin, with viii to xiii 28 to 25 rays, the spinous portion much shorter than the soft, the spines short and weak, graduated. Caudal free and rounded. Anal similar to the dorsal, with iii 17 to 19 rays. Pectoral small, symmetrical, with 16 or 17 rays, the middle longest, inserted below the middle of the body. Ventral jugular, composed of a small spine and a single bifid ray. Gill-openings wide; gill-membranes separate, free from the isthmus; branchiostegals six; pseudobranchiæ present, glandular; gills four, a narrow slit behind the fourth; gill-rakers in small number, short, stout, and spinulose; pharyngeal bones separate, armed with well developed cardiform teeth; air-bladder present, simple. Stomach cæcal; pyloric appendages in moderate number; intestinal canal straight. Premaxillary processes short; supraoccipital crest vestigial; coracoid dilated; scapula without foramen; pectoral arch attached to the skull by a simple posttemporal.

An aberrant monotypic family of percoid fishes, holding an isolated position, and inhabiting the fresh waters of Northern Tasmania and South-Eastern Australia; it has not as yet been recorded west of the Torrens River, South Australia, but is included by Zietz* among the edible fishes of the Lower Murray, up which and its tributaries it ascends, even to its remote head waters in the Queensland Ranges, where it is now firmly established; here its general appearance and slippery nature have given rise to the persistent belief in the presence of an eel in our transmontane waters.

GADOPSIS Richardson.

Gadopsis Richardson, Zool. Erebus & Terror, ii, 1848, Ichth., p. 122; no description (*marmorata*); Günther, Brit. Mus. Catal. Fish., iv, 1862, p. 318; McCoy, Prodr. Zool. Vic., dec. iii, 1879, p. 39; Ogilby, Edib. Fish. & Crust. N. S. Wales, 1893, p. 149

Characters of the family. (*Gadus*, cod; ὄψις, gen. ὄψεως, resemblance: from a superficial likeness to that fish.)

The genus *Gadopsis* has had a somewhat varied experience as to its position in the system. Its original author considered it "to belong to the Blennioid family." From thence it was removed by Günther, who placed it at the head of

* Trans. Roy. Soc. South Australia, xxvi, 1902, p. 267.

his "ANACANTHINI GADOIDEI," defining its position in the following words—"Before entering into an account of the true Gadoid fishes, we must intercalate the type of a separate family, which, although having every character of a Gadoid, has true spines in the dorsal and anal fins, thus forming a connecting link between the Acanthopterygians and the Malacopterygians. The structure of the dorsal fin, the presence of pyloric appendages, etc., prevent its being placed among the Blennoids." Four years later Steindachner* reasserted its affinity with the blennies, and was subsequently supported by Gill, who† placed the family *Gadopsidæ* between the *Cepolidæ* and *Clinidæ*. Günther, however, adhered to his original opinion, since we find him in 1880‡ retaining *Gadopsis* among the ANACANTHINI. Coming to more recent times Boulenger§ and Goodrich|| both refer it to the *Blenniidæ*, not even allowing it family rank. The latest announcement on the subject by Regan I have already reproduced.

GADOPSIS MARMORATA Richardson.

Gadopsis marmoratus Richardson, Zool. Erebus & Terror, ii, 1848, Ichth., p. 122, pl. lix, figs. 6 to 11: Rivers in the southern parts of Australia ¶—Günther, Brit. Mus. Catal. Fish., iv, 1862, p. 318—Steindachner, Sitzb. Akad. Wien, liii, i, 1866, p. 457—Klunzinger, Arch. f. Nat., 1872, i, p. 38—Castelnau, Proc. Zool. & Accl. Soc. Vic., i, 1872, p. 160—id., Essay Edib. Fish. Vic., 1873, p. 14—Klunzinger, Sitzb. Akad. Wien, lxxx, i, 1879, p. 393—Rep. Roy. Comm. Fisher. N. S. Wales, 1880, p. 89—Macleay, Proc. Linn. Soc. N. S. Wales, vi, 1881, p. 112—Johnston, Proc. Roy. Soc Tas., 1881 (1882), pp. 60 & 124—Woods, Fish & Fisher. N. S. Wales, 1882, p. 105—Ogilby, Catal. Fish. N. S. Wales, 1886, p. 37—Lucas, Proc. Roy. Soc. Vic. (n.s.) ii, 1890, p. 33—Johnston, ibid., 1890 (1891), pp. 26 & 35—Ogilby, Edib. Fish. & Crust. N. S. Wales, 1893, p. 149—Kent, Naturalist in Austr., 1897, p. 156—Zietz, Trans. Roy. Soc. S. Austr., xxvi, 1902, p. 267—Waite, Synops. Fish. N. S. Wales, 1904, p. 53—Stead, Fish. Austr., 1906, p. 210, text-fig. 74—id., Edib. Fish. N. S. Wales, 1908, p. 116, pl. lxxx—McCulloch, Proc. Linn. Soc. N. S. Wales, xxxvi, 1911, p. 82.

Gadopsis gracilis McCoy, Prodr. Zool. Vic., dec. iii, 1879, p. 39, pl. xxvii, fig. 2: Yarra River, Vic.

Gadopsis gibbosus McCoy, ibid., p. 41.

Gadopsis fuscus Steindachner, Sitzb. Akad. Wien, lxxxviii, i, 1884, p. 1105, pl. i, fig. 2: Fresh-waters of South Australia.

Gadopsis sp. Macleay, Proc. Linn. Soc. N. S. Wales, x, 1885, p. 267: Little River at Yass, N. S. W.

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* Sitzb. Akad. Wien, liii, 1866, p. 456.

† "Families and Subfamilies of Fishes," Mem. Nat. Acad. Sci. Washington, vi, p. 136.

‡ Study of Fishes, p. 537.

§ Cambridge Nat. Hist., Fish., 1904, p. 709.

|| In Lankester's Treatise on Zoology, pt. ix, 1909, p. 458.

¶ Castelnau (ibid. 1) states that Richardson's type "was brought from Tasmania," and the statement has doubtless influenced subsequent authors in their treatment of the species. There is, however, no justification whatever for this assertion, since Richardson distinctly gives the locality as above. Günther, in his list of the specimens in the British Museum (1862), refers to what is possibly the type in the following terms:—

a. Skin, in spirits. Australia. From Mr. Gould's collection.

THE SLIPPERY.

BLACKFISH; FRESH-WATER BLACKFISH; RIVER BLACKFISH; TAILOR OR TAILER (at Guntawang, N.S.W.); MARBLED RIVER COD.

(Plate XX.)

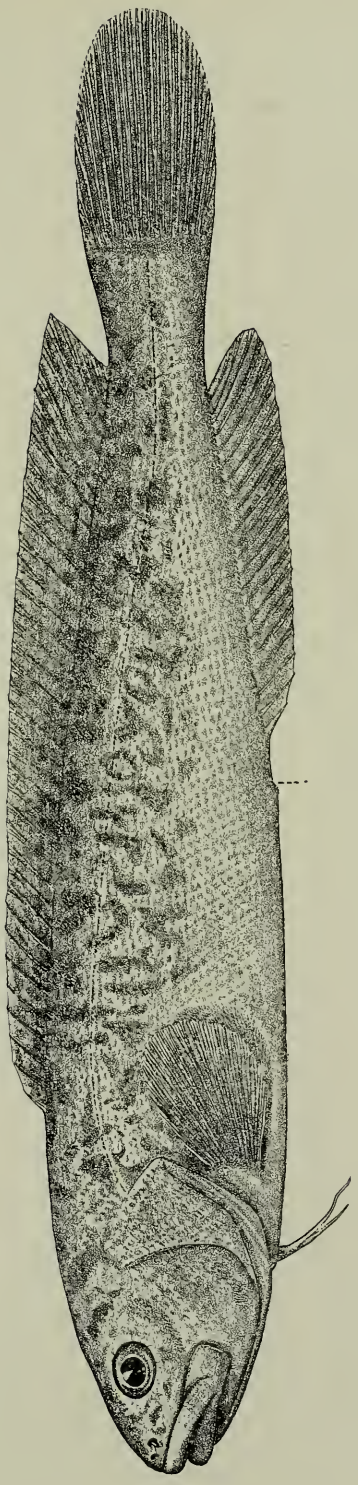
Depth of body 4·5 to 5·4, length of head 3·6 to 4·1, of caudal fin 4·8 to 5·9, of pectoral 5·85 to 7·55, of ventral 6·25 to 7·8 in length of body. Length of snout 3·1 to 3·6, diameter of eye 4·8 to 6·55, width of interorbit 3·9 to 5, length of maxillary 2·15 to 2·6, of mandible 1·75 to 2·15, height of soft dorsal 1·75 to 2·35, of anal 2 to 2·65 in length of head.

Body tapering gracefully from the shoulders backward, its width 1·4 to 1·6 in its depth, which is 1·15 to 1·45 in the length of the head: caudal peduncle slender, its least depth, which is immediately behind the dorsal fin, 1·35 to 1·6 in its length and 2·45 to 2·9 in the depth of the body. Head deeper than wide, its upper profile more or less gibbous behind the frontal region, its width at the cheeks, which are somewhat swollen, 1·7 to 2 in its length, which is 1 to 1·3 in that of the trunk. Anterior profile of snout strongly convex, the upper linear or feebly convex and continuous with the frontal region. Diameter of eye 1·5 to 1·9 in the length of the snout, 1·1 to 1·4 in that of the convex interorbital width, and 2·6 to 3·3 in the postorbital length of the head. Maxillary extending to below or a little behind the pupil, the width of its distal expansion 1·4 to 1·8 in the eye-diameter.

Lateral line following the contour of the back, and consisting of from 45 to 50 tubes, each of which corresponds to from 2 to 3 series of body-scales. Mucous system of head reaching the surface by means of large open pores, of which there are two principal series; an inner from the snout along the edges of the preorbital and suborbital bones, finally curving upwards behind the eye; and an outer along the mandibles and the border of the preopercle; in addition to these there are a conspicuous pair arranged transversely between each pair of nostrils, and a third pair arranged longitudinally along the middle of the interorbital region.

D. viii to x 28 to 26; A. iii 17 to 19; P. 17. Dorsal fin originating above the middle of the appressed pectoral, the last spine longest, 1·1 to 1·45 in the length of the snout and 1·6 to 2·35 in the longest ray, which is near the end of the fin and does not reach to the caudal when depressed.* Anal originating below the fifth or sixth dorsal ray, and not extending so far back as that fin; spines graduated like those of the dorsal, but much stronger and pungent, the last as long as or a little longer than that of the dorsal and 1·5 to 2 in

* In Richardson's figure the rays are depicted as reaching well beyond the base of the caudal.



GADOPSIS MARMORATUS Richardson. Nat. Size.

D. B. Fry, del.

the longest ray. Length of pectoral 1·55 to 1·9 in that of the head. Inner branch of ventral ray the longer, 2·3 to 3·1 in the space between its origin and the vent.

Gill-rakers 2 or 3 + 5, the longest 2·5 to 2·7 in the eye-diameter. Vent postmedian, its distance from the root of the caudal 1·15 to 1·4 in that to the tip of the snout.

Pale olive-green, the back and sides more or less conspicuously marbled with dark olive- or chocolate-brown, the marking often taking the form of more or less regular vertical bars between the dorsal fin and the lateral line; abdominal region light yellowish green finely powdered with darker. Upper surface of head beyond the occiput dull blue, the cheeks similarly but more lightly tinted. Basal half of vertical fins greenish yellow, shading to a dull blue-gray on the outer moiety; dorsal fin with a basal series of brown blotches, which are much more pronounced on the soft rays, where also there is sometimes an inconspicuous series of median blotches: caudal uniform in the adult, but with a broad terminal and median darker transverse band in the young, the pectorals and ventrals immaculate, the latter yellowish (*marmoratus*, marbled).

Described from 10 examples, measuring from 110 to 235 millim., in the State Museum; four of these belong to the old collection and are in fair condition; they were, I believe, obtained in the Condamine at Killarney by Mr. J. Lamb. The remaining 6 are in perfect condition, and were forwarded lately from the same locality by Mr. J. H. Stevens, Chief Inspector of Fisheries.

Vernacular Names:—Considering its present wide distribution the species is not over-burdened with local names. In the Southern States (Tasmania and the coastal belt of Victoria) it is commonly known as the "Blackfish," a name which is inadmissible as it more properly belongs to the kyphosid genus *Girella*. To obviate this Stead proposed the addition of the word "River," and describes and figures it as the "River Blackfish." This, though an improvement, is too pronounced a misnomer to ever become popular. Similarly the title, proposed by me in 1893, of "Marbled Cod" must be discarded, since the fish has nothing to do with the gadoid anacanthines. Speaking of New South Wales Stead (*in lit.*) says:—"This species is known under a variety of names in different portions of its New South Wales habitat. Rarely is it called 'River Blackfish.' The name of 'Slippery' is applied to it commonly in the vicinity of Orange and thereabouts, and occasionally in other parts, including the Upper Snowy River. That of 'Tailer' is very widely used, more than any other name, for the species, though why, I never could ascertain. In the Macquarie and its feeders—especially the Cudgegong—where I have found *Gadopsis marmoratus* to be especially abundant, the name of 'Tailer' is very firmly established. I have found the name of 'Gudgeon' applied to the fish in some places; and on some of the Upper Murrumbidgee feeders it has been described as a 'Cod.'" In Queensland, according to

Messrs. Stevens and Colclough it goes by the name of "Nikkie Long Cod," usually abbreviated to "Nikkie," in the Warwick District. I have been unable to ascertain any aboriginal name for the fish. From these I have selected "Slippery" as the most suitable and certainly the most expressive title, for the fish is very difficult to handle, being covered with a thick slime, which, according to Mr. Stevens, is very difficult to remove from the hands, and has a peculiar and disagreeable odor.

Variation:—With regard to the comparative length of the head and body, on which McCoy—overlooking the fact that Richardson's description was drawn up from a dried skin and is, for that reason, liable to inaccuracy—lays so much stress, a comparison of my specimens with the tables given by McCoy and Johnston (1) shows that both the Victorian and Tasmanian examples, referred to therein, overlap those of Queensland at each end, as may be seen by the following:—

Locality.	Specimens examined.	Length in millim.	Variation.	Authority.
Yarra, Vic.	3	125 to 635	4·2 to 4·9	McCoy
North Esk, Tas.	7	133 to 273	4·0 to 4·9	Johnston
Condamine, Q.	10	110 to 235	4·4 to 4·8	Ogilby

If there be anyone who still holds the opinion that more than one species of *Gadopsis* exists, the above table should, I think, convince him to the contrary. The other character, on which McCoy places some reliance, namely, the number of dorsal spines, is, when examined, found to be equally fallible. Richardson computed them at 10, Günther at 10 or 11, Castelnau at 12, McCoy at 10 to 12 (*gibbosus* and *gracilis*), Steindachner at 10 (*fuscus*), Ogilby (2) at 10 to 13. Queensland specimens, therefore, show the minimum variation as yet ascertained, *i.e.*, 8 (2) 9 (1) 10 (7). The western form of *Gadopsis* has apparently a more slender body and fewer dorsal spines than its south-eastern prototype, but there is no difference between it and specimens obtained in the lower reaches of the Murray. Nor must we forget that the fishes, which have been recorded from the Murrumbidgee (Macleay), Bell (Ogilby), Macquarie and Namoi (McCulloch), Tumut, Gwydir, and other watersheds (Stead), and now from the Condamine, are primarily descended from the Snowy River stock by way of the Upper Murrumbidgee. These colonists have ever instinctively chosen those affluents which have their source in the higher table-lands, and which, owing to the different conditions of life, of food, and of environment, have increasingly altered in external appearance the further they have drawn away from their parent base. After taking into consideration all the varying conditions under which they live, and analyzing all the available literature on the subject, I cannot see any reason to alter my opinion, expressed twenty years ago, that—" This

species is so variable, not only in its coloration, but also in its comparative measurements and the number of spines and rays in the dorsal fin, that we consider the differences between the typical form and the two species described by McCoy, great as they may appear individually, to be only such as might be expected to occur in a fresh-water species of wide range, and which exists under such varying conditions of life and diversities of climate." These differences are accentuated by the discovery of the Queensland form, but the main issue is in no ways affected thereby. Years ago Johnston came to the same conclusions as are here set out from a "close study of the variability of the Tasmanian *G. marmoratus.*" He concludes his remarks with the following pertinent sentence, with which I cordially agree—"It is very hazardous in this genus to create a new species based upon the examination of only two or three individuals." So far as fresh-water fishes at least are concerned he might well have omitted "in this genus." In reference to this subject Mr. David G. Stead, Superintendent of Fishery Investigation, New South Wales, kindly forwards the following note:—

" I find a very great amount of variation in both form and color in this species. As in a number of our other fluviatile fishes, the form is generally more elongate in those examples taken from the more rapid streams, than in those from sluggish ones; and particularly is the difference to be noted between the *Gadopsis* of a still lagoon and that of a neighboring stream—the former being comparatively stout and short. The difference is so marked at times, that the specialist might well be pardoned for considering such fishes as specifically distinct, if they were just placed upon his table without any information as to the places whence they came. In color the variation usually ranges from a light brown to a dark greenish brown—with the usual marblings. (The latter may be of a large, or yet quite a small, pattern.) Where the fish is taken from very dark muddy bottoms or very turbid streams it is usually of a dirty blackish color with but little trace of the marmorations."

Historical:—Described originally by Richardson from an undetermined river in Southern Australia, Günther next enlarged its range by the inclusion of Tasmania, while Steindachner, four years later, by obtaining examples from the Murray River, definitely established an Australian locality for the species. The first writer in Australia to publish an account of this fish was Castelnau, who in 1872 recorded it as being "found in almost all the streams of South-Eastern Australia." Under the names *gibbosus* and *gracilis* McCoy, some years later, strove to detach from the parent species two Victorian forms, the latter a slender and generally handsome fish from the Yarra, the former stouter, shorter, and duller in color from the Bunyip River, Gippsland. Recent writers, however, consider that the characters on which these species are based are of too trivial a nature to admit of their specific separation. Macleay (1881) adds nothing to our knowledge of the species, but Johnston in the succeeding year makes some interesting remarks on the subject of its distribution in Tasmania, which are

worth requoting here. He writes:—"It is most singular that this species,* with the Blackfish (*Gadopsis marmoratus*) should be identical with species found abundantly in Victorian Rivers, and wholly absent in all the southern waters of Tasmania. The Unio (*U. moretonicus*), and the Freshwater Lobster (*Astacopsis Franklinii*), are also restricted to the rivers which discharge their waters into Bass's Straits. The peculiar inhabitants of northern rivers, therefore, are more Victorian than South Tasmanian in character, which is remarkable when we consider the present insular character of Tasmania."† And again—"The Blackfish, whose singular distribution has been commented upon, is found in nearly all the rivers of Tasmania which flow into Bass's Straits. Their original absence in some northern streams, such as the South Esk, is somewhat puzzling, but the total absence from all the other rivers and streams of Tasmania where the conditions are identical can only be explained on the principles of geographical distribution as illustrated by Darwin and Wallace." In 1893 the author took exception to the last sentence in the following words, with which he sees no reason now to differ:—"With the latter part of this quotation we can not agree, and we think the solution of the 'puzzle' will be found in the different character of the geological formations through which the streams flow, or the different composition of the water constituting such streams." As somewhat confirming this view Johnston's remark, that in the North Esk they fail to attain to the size found commonly in the other streams of Northern Tasmania, tells against him, for it seems probable that the conditions of life in that stream had a deleterious effect on the fish, which in its southern namesake had become so accentuated as to preclude its very existence in a natural state. Tenison Woods is, I believe, the earliest writer to extend its range to the western waters of New South Wales, alluding to it as "a very common fish in some of our rivers both of eastern and western waters"; but this is merely a general assertion, no locality being mentioned, and must, therefore, be taken for what it is worth.‡ Macleay, however, in 1885 definitely fixed a western habitat by placing on record his acquisition of a specimen from the Little River, a tributary of the Murrumbidgee near Yass. In the previous year Steindachner made another attempt to differentiate from *G. marmoratus* the dull-colored form, peculiar to lagunes and bayous,

* *i.e.* the Bass (*Percalates colonorum*).

† This restricted Tasmanian distribution was first noticed by Mr. Morton Allport, who, in May, 1867, read a paper before the Royal Society of Tasmania "On the Local Distribution of some Tasmanian Animals" (Proc. Roy. Soc. Tas., 1867, pp. 9 to 13), in which the following paragraph occurs (p. 10)—"The large fresh-water fish known to northern colonists as the 'Black-Fish,' and the great river Crayfish, abound in streams flowing to the northern and western coasts, and are wanting in those flowing to the eastern and southern."

‡ Since writing this paragraph I find that Woods' announcement was forestalled by the Report of the Royal Commission on the Fisheries of New South Wales, 1880, in which the following passage occurs:—"The 'black-fish' (*Gadopsis marmoratus*) is a remarkable-looking fish, which is found in all these rivers [*i.e.*, those of the Murray River system]; it is a mud-fish, and is seldom caught except by the emptying or drying-up of a waterhole. It is said to be good, and to attain a length of 16½ inches." My comment, appended above to Woods' record, is equally applicable in this case.

as *G. fuscus,* but the effort was as futile as those previously made by McCoy. In 1893, the writer reviewed all that was then known of the habits and distribution of the fish, extending among other things its northerly range in transmontane New South Wales to the Bell River at Wellington. No further addition to our knowledge transpired until Zietz recorded its presence in the Onkaparinga and Torrens Rivers, South Australia, thus increasing its range to some distance west of the Murray. Stead (1908) gives its New South Wales distribution as "the upland streams of the southern tableland," while the Australian Museum, as recorded by McCulloch, has received examples "from Manilla on the Namoi River, and Rylestone on a tributary of the Macquarie." At my request Stead has furnished me with the following more detailed information as to its distribution in the western waters of the "Mother Colony":—"*Gadopsis marmoratus* appears to be distributed over the greater portion of the Murray Drainage area. My personal experience in the Highlands of New South Wales shows that it occurs in the Yarrangobilly River, Jounama Creek, Goobarragandra River, Adjungbilly Creek, and other feeders of the Tumut River, the Tumut itself, the Upper Murrumbidgee, the Upper Snowy and its feeders (said to have been introduced to the Craigie River from Victoria in 1883, and sent in to me for identification as a species of Trout in 1908); Fish River, Bell River, Cudgegong River, and other feeders of the Macquarie, as well as the upper waters of the Macquarie itself, and the Rocky River (a tributary of the Gwydir) at Uralla. In the plain country my experience of this fish shows it to be common in many places, particularly where the streams are sluggish, and in billabong or 'Warrumbool' country, including the middle Murray, the Kyalite or Edward's River, the Murrumbidgee as far as Hay, Yanco Creek, the Lachlan,* the Macquarie, the Namoi, and the Barwon. It seems to be more abundant in the Macquarie River and its feeders than anywhere else in its New South Wales habitat." The first announcement of its occurrence in Queensland waters was made by me in the Brisbane "Observer" of June 26, 1909. There I recorded that "Mr. Mat. Colclough, who has always shown a keen interest in piscatorial matters, has recently forwarded to me two fishes caught in the Condamine River in the vicinity of Warwick." Of these I reported to Mr. Colclough that one was a young example of the common Golden Perch (*Plectroplites ambiguus*), while "the other is a much more interesting fish, being a unique and geographically most important addition to the fauna of Queensland, namely the Freshwater Blackfish (*Gadopsis marmoratus*)." After giving some account of its distribution and uses I wrote—"Previous to this record I never heard of its existence north of Deniliquin, so that you have a right to plume yourself on having added so many hundreds of miles to the geographical distribution of this extraordinary fish, which stands absolutely alone in the scheme of Nature, forming a monotypic family, without a near relative either in recent or palæozoic times."

* I have not yet seen it here, but have good evidence of its occurrence.—D.G.S.

Reproduction:—The breeding habits of this curious fish have not been studied with the attention which they deserve; nevertheless, our present knowledge is greatly in advance of that when Johnston, who first alludes to the subject, wrote that, though he and others had opened hundreds of specimens, he was unable to distinguish the male from the female, and so suggests that the fishes are bisexual. The earliest precise information, which we possess, is contained in the following short paragraph, taken from my work above mentioned:—"Specimens from the Bell River, Wellington, were shedding their spawn when obtained during the month of October. The ripe ova are few in number, of large size, and orange colored." Up to now that was the extent of our published information on this most important subject, but Messrs. Stead and Colclough both contribute useful additions to our knowledge. The former states (*in lit.*):—"Spawning takes place usually about October and November, though occasional females may be taken with ripe eggs throughout the whole of the warmer weather. The eggs are demersal and adhesive. The ripe ova vary in colour from a light grey to a golden tint, but are usually of a pale straw-color." The latter writes me:—"In respect of its spawning; towards the end of the winter a peculiar grass appears in the bed of the stream, which grass is much frequented by the fish at this time when it is full of spawn. I believe that the roe is deposited for protection among this weed, but whether the ova adhere, either singly or in masses, to the grass, or to stones, or whether the fish makes a nest of some sort among the grasses, I have so far failed to satisfy myself. I am, however, fully satisfied that the worst enemy, against which both the ova and fry have to contend, is the fresh-water shrimp,* which at this season feeds largely upon them." With the additional information imparted to us above by Stead, we may safely conclude that the ova adhere to the stems of the grass referred to by Mr. Colclough.

Habits:—As with the Trout the most fruitful cause of variation in the Slippery is its catholicity of habitat, for it is not only a denizen of still lagunes and sluggish streams, but can also hold its own in the more rapid flowing creeks and rivulets, though it is in the former that they attain their greatest development. Regarding their mode of life the elder Australian authors have given us but scanty information. The Report of the Royal Commission on the Fisheries of New South Wales (1880, p. 89) tells us that "it is a mud-fish, and is seldom caught except by the emptying or drying-up of a waterhole." This statement, which is but partially true, has unfortunately been copied over and over again, and gives a very restricted view of the habits of the fish and its adaptability to incongruous conditions and varying environment. Johnston remarks that it is "usually taken in considerable numbers by rod and line all the year round, the hook baited often with the large white grub" of a species of moth obtained from

* Palæmon sp.

the wattle (*Acacia dealbata*) and honeysuckle (*Banksia marginata*). Stead, who has made better use of his opportunities than others who were in a better position for observing these fishes, writes—"*Gadopsis marmoratus* is a bottom fish, lurking usually in quiet snaggy pools—particularly in places where there is an eddy—or in backwaters and billabongs. Here it finds worms and aquatic insects principally. Nothing, however, of an animal nature comes amiss (as the stomach contents reveal), from small fishes—including their own kind—down to 'still life' like the river *Mollusca*. In the mountainous parts of its habitat, it is found commonly in the pools and but rarely in the rapid running portions of the streams. The most seductive bait, used by anglers in pursuit of this species, is the common earthworm. This is attached alive to a small hook. The best anglers use a light line and light jointed rod. Under such circumstances a little sport may be got out of the capture of the fish; but usually 'any old line' and 'any old rod' is used—the latter is frequently a bamboo, but is often made from a light thin sapling—'light' as a sapling, be it said, but hardly as a fishing-rod." We have also received a most interesting letter, concerning its Tasmanian habits, uses, and distribution, from Mr. C. H. Harrison, Hon. Sec. Northern Tasmanian Fisheries Association, which we have much pleasure in quoting *in extenso*. In answer to questions as to its value as a game and food fish, its size, and its relations with the introduced Trout, he writes as follows:—"The Blackfish is a good food fish, but its game or sporting qualities are practically nil. It feeds mostly at night, and so is not much caught during the day. The hour about dusk is very favorable for taking it. The method is to bait with worm, or better still white grub obtained from trees, notably the wattle, and fish with a float. You give the fish time to get well hold, and then yank it straight out; that is, unless it is of large size, when a landing net is best employed. It attains a considerable size; in this country specimens up to 7 lb. have been fairly plentiful in years gone by, while specimens of 12 lb. have been taken. Even with the large fishes no fight has been put up, but some fine catches have been made. I may mention three rods taking 24 dozen in a night, and another three rods taking 63, weighing from 1½ to 6 lb. apiece, the smaller ones having been all returned. A curious thing was that the 24 dozen just mentioned were all full of roe, not one carrying milt. The Blackfish spawns in the spring or early summer, but their exact breeding habits have not, to my knowledge, been investigated here. The species originates in this State only in the rivers flowing directly into Bass Strait. It has, however, been transplanted into other streams and has done well. About fifteen years ago a mortality broke out amongst them, and they appeared to die almost out in some rivers, but a revival has taken place and they are again increasing rapidly. Many years ago about 500 were taken south and turned into the Derwent, about the best-stocked trout stream in the Island at the time. Everyone laughed and said they would only make food for the Trout. In a few years, however, they began to show up in the tributary streams, and have since increased to such an extent that they are now plentiful,

and trout-fishers using a grasshopper in the ripples of a summer's night have caught a trout at one cast and a blackfish at the next. In point of fact our Commissioners of Fisheries at one time received a complaint that Blackfish were so plentiful in the Derwent that they interfered with the trout fishing. Of course trout prey on them to a certain extent, but the Blackfish appears to have evolved a fresh sense, and now takes pretty good care of itself. On the other hand I have known a large Blackfish caught with a trout in its inside, so that the dietary question is not all one-sided." Referring to Queensland Mr. J. Hirst Stevens, State Inspector of Fisheries, while recently up country as a member of a Royal Commission engaged in reporting upon the condition of our fishery industries, interested himself in making inquiries about this species, and has supplied me with the following note:—"These little fishes frequent especially the smaller waterholes and pools along the banks of the Condamine, where they find comparative safety from the voracity of the Cod (*Oligorus macquariensis*). As they usually go in small schools of from two to five dozen and take a bait greedily, the angler, provided with light tackle and a box of earthworms or small grubs, would usually have no difficulty in catching as many as he desires of from 5 to 8 inches in length." Mr. Colclough tells me that—"it is common everywhere about the Warwick District, but rarely attains a weight of over four ounces; it is not, therefore, seriously regarded as a food or game fish, except by youthful anglers, to whom it appeals by reason of its abundance, and the facility with which it may be captured by almost any lure, for it is a bold and voracious feeder. The most satisfactory baits in use here are the white grubs which are obtainable from the willow tree and the moth into which it eventually turns; the latter when hooked and allowed to flap about on the surface of the water is an almost irresistible attraction. Mole-crickets (*Curtilla* spp.), small grasshoppers, cicadas (*Psaltoda harrisii**), beetles and other insects, with the ubiquitous worm, may also be successfully employed."

Uses:—The consensus of opinion as to the economic value of the Slippery varies, but is generally favourable from the epicure's and damnatory from the angler's viewpoint. Speaking of Victoria Castelnau calls it "a good edible fish" and McCoy "an excellent fish for the table." Johnston bears testimony to the value of the Tasmanian fish as follows:—" It is much esteemed as food, and is a welcome fare to the bushmen and settlers who are far removed from the centres of population." Stead writes—"In country parts (of New South Wales) this species is looked upon as being of considerable value as an edible fish; and as a sporting fish, it is of no mean order, taking the bait readily and showing fight." This is satisfactory, in that presumably the mainland fish is not so arrant a cur as Mr. Harrison's letter makes out his island cousin to be.

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* I am indebted for the scientific names to my colleague, Mr. H. Hacker.

Range:—Fresh waters of Tasmania and Victoria, indigene only to those streams which flow into Bass Strait; it has, however, been successfully introduced in several other Tasmanian rivers, where it is now firmly established. From Eastern Victoria it has spread westward to the Murray and, possibly in more recent times, to the Onkaparinga and Torrens Rivers, the latter being, so far as is known, its present westerly limit. Its colonization of the eastern watersheds of the Murray and Darling drainage areas has been complete and successful, since Stead's graphic description of its distribution in the Mother State leaves no room for doubt that it has established itself in all the rivers flowing westward, being, as he puts it, "equally common in lagunes at such widely separated places as the vicinity of Albury on the Murray River and Walgett, at the junction of the Namoi and Barwon Rivers." Beyond this it has pressed ever onward so as to include all that portion of Queensland drained by the Condamine, having made its way up that river to its head-waters in the Ranges about Warwick and Killarney. That it has failed to obtain a foothold in any of the New South Wales rivers east of the Dividing Range proves that, though sometimes taken in the brackish water of tidal rivers, it is incapable of existence in pure sea water. This brings to the front the fascinating question as to how far eastward the Bassian Isthmus of Early Pliocene times actually extended. Hedley,* in a valuable paper on " The Effect of the Bassian Isthmus upon the existing marine Fauna," fixes the eastern border of the isthmus at or near Cape Howe. If this be correct we would expect to find *Gadopsis* still in existence in the Brodribb, Genoa, and other streams flowing southward into Bass Strait between the estuary of the Snowy and Cape Howe. But this, so far as we know, is not the case. There seems, therefore, to be some ground for query as to whether it might not be safer to place the boundary of the lost isthmus somewhere in the neighbourhood of Cape Conran than further east. Next comes the question of the peopling of the western waters. The means whereby this was effected is possibly to be found in the one-time capture of the head waters of the Snowy River by the Murrumbidgee, and the consequent transference of an eastern fauna into a western river, whence it has spread in all directions. Unlike the Murray Cod (*Oligorus macquariensis*), Golden Perch (*Plectroplites ambiguus*), or Snubnose Perch (*Macquaria australasica*), all three of which have crossed the Range at one or more points, the Slippery has not succeeded in so doing, and is, therefore, in these systems antithetical to the Eel (*Anguilla reinhardtii*), which as persistently refuses to cross to the western slopes, notwithstanding its known ability to travel long distances at night through damp grass. This is the more astonishing as the western-flowing Cudgegong and the eastern-flowing Goulburn (?) practically arise from the same source, but while in the eelless Cudgegong the Slippery is so common as to have gained the distinctive local appellation of "tailor," it

* Proc. Linn. Soc. N. S. Wales, xxviii., pp. 876 to 883.

yet never crosses to the eastern watershed; and the converse proposition applies to the Eel.

Dimensions:—In Northern Tasmania Johnston, on hearsay evidence, writes of a 10-lb. specimen, but continues that 3 or 4 lb. is a more usual size; Harrison, however, has known of a patriarch that turned the scale at 12 lb., and states that some years ago a 7-lb. fish was not uncommon, while even now a 6-pounder does not provoke sarcastic comment. In the coastal rivers of Eastern Victoria they grow to a weight of about 4 lb., but are much smaller in the Upper Snowy and the Murray and Darling Watersheds. On this point let Stead speak for himself:—"Though I have seen some very large examples from Southern Victorian and Tasmanian rivers, my experience of the species in New South Wales waters is that it is uniformly small—comparatively speaking. A fish of 15 inches in length is a very large one, though I have heard on good authority of examples up to 18 inches long being taken in the Macquarie. The usual 'large' ones, taken by anglers in the Cudgegong at Rhylstone, Cudgegong, or Mudgee, do not exceed 12 inches in length, and the average barely exceeds the present lawful length, 9 inches. In lowlands proper the fish appears to be very small." All this fits in thoroughly with our experience in Queensland, where Colelough gives its maximum weight at 4 oz. and Stevens its length to 8 in.; the largest which I have seen measured just over 10 inches. There is no published record of the dimensions to which it attains in South Australia.

Conclusion:—Nothing further now remains to write than the pleasing duty of acknowledging our indebtedness and conveying our thanks to those gentlemen—Dr. E. C. Stirling, Messrs. J. Hirst Stevens, Matthew T. Colclough, Allan R. McCulloch, Charles Hedley, C. H. Harrison, and David G. Stead for their kindly and helpful interest in this attempt to bring our knowledge of this most interesting and curious fish up to date.

ON SIX NEW OR RARE QUEENSLAND FISHES.

By J. Douglas Ogilby.

(Plates XXI to XXIII.)

POLYNEMIDÆ.

POLYDACTYLUS MULTIRADIATUS (Günther).

Polynemus multiradiatus Günther, Brit. Mus. Catal. Fish., ii, 1860, p. 324.

(Plate XXI.)

Depth of body 2·75 to 2·94, length of head 3·3 to 3·45, of caudal fin 2·6 to 2·87, of pectoral 3·3 to 3·46, of upper free ray 2·81 to 3·03, of ventral 5·75 to 6·1 in length of body. Length of snout 3·95 to 4·35, diameter of eye 3·3 to 3·5, width of interorbit 4·1 to 4·4, length of maxillary 4·15 to 4·25, longest dorsal spine 1·5 to 1·56 in length of head.

Dorsal contour of body much more elevated than the ventral, its width 2·75 to 2·82 in its depth, which is greatest immediately in front of the anal fin and is one fifth more than the length of the head ; caudal peduncle two fifths longer than deep, its least depth 2·33 to 2·44 in the depth of the body. Head moderate, with convex occipital profile, its width 2 to 2·1, its depth 1·33 to 1·4 in its length. Snout with linear or slightly convex upper profile, its anterior border linear and strongly declivous, 1·3 to 1·33 in the eye-diameter ; interorbital region feebly convex, its width 1·2 to 1·4 in the same. Premaxillaries feebly emarginate ; maxillary extending to a pupil-diameter behind the eye, the width of its distal extremity 3·43 to 3·56 in its length and much more than the depth of the preorbital, tip of mandible vertically below the anterior border of the eye. Vertical limb of preopercle evenly and finely denticulate, the lowermost tooth much stronger but scarcely longer than the others.

Scales in 7/59/12 series. Soft dorsal and anal fins with a wide basal scaly sheath ; a pointed scale in the axils of the pectorals and ventrals, that of the latter the longer and narrowly lanceolate, about as long as the eye-diameter. Lateral line forked on the caudal fin, a branch extending on each lobe.

D. viii, i 14 or 15 ; A. iii 17 or 18 ; P. 15 + vii. Length of spinous dorsal 1·65 to 1·8 in the soft and 1·5 to 1·7 in the third spine, which is 1·2 to 1·3 in the height of the soft dorsal, the outer border of which is deeply emarginate, the last ray being

much longer than those preceding it. Caudal fin deeply forked with subequal pointed lobes, the middle rays 2·5 to 2·6 in the upper lobe. Anal originating slightly in advance of and one fifth to one third longer than the soft dorsal, the last spine 1·85 to 1·92 in the first ray ; outer border obliquely truncated, the last ray but slightly produced. Pectoral as long as the head, the fourth ray longest, reaching to midway between the vent and the anal fin : upper free ray longest, reaching to the anal. Ventral 1·67 to 1·85 in the length of the head, reaching to beyond the vent.

Gill-rakers 13 + 18, the longest 1·56 in the eye-diameter.

Back and sides above the lateral line pale greenish yellow, sides and lower surface silvery. Snout golden brown ; a well marked black supraciliary band ; opercles iridescent bluish silvery. Fins pale brown, the first dorsal densely, the others more sparsely powdered with black.

Total length to 200 millim.

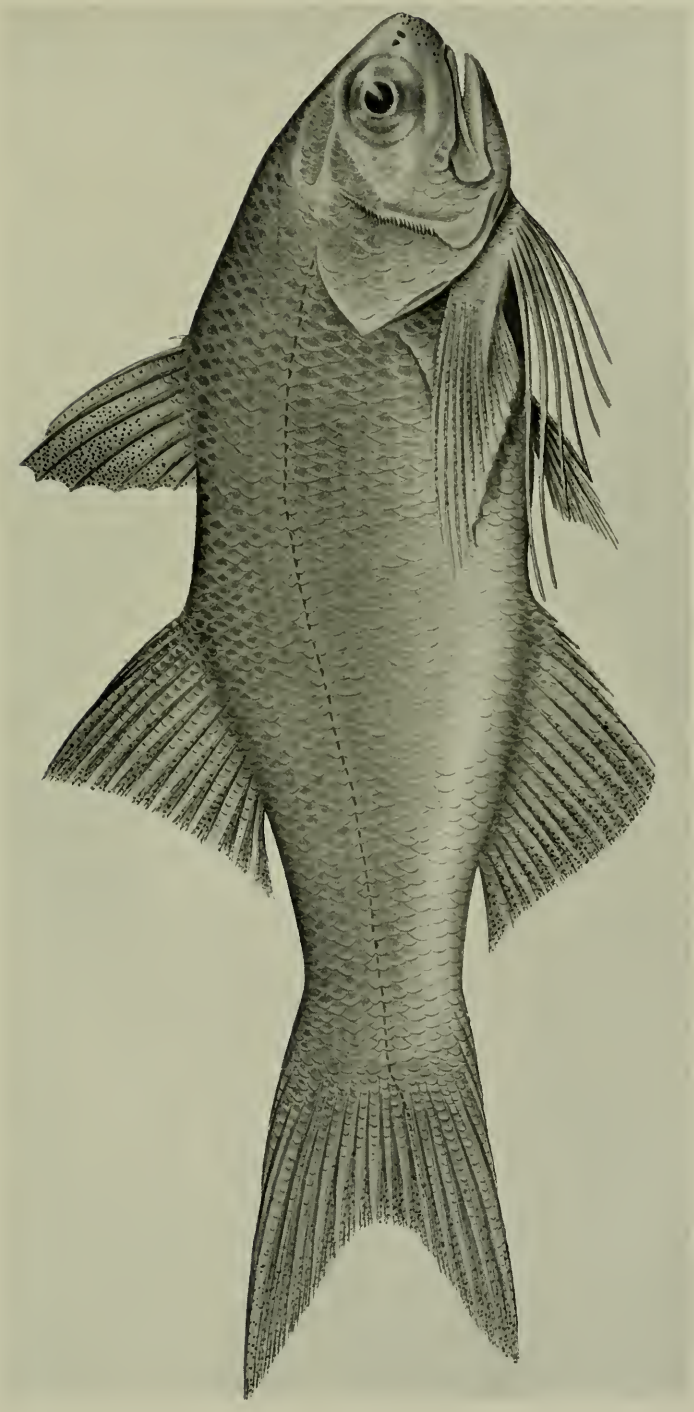
Range :—From the coast of China to Torres Strait (Thursday Island). Notwithstanding the fact that the species has not been recognised from any part of the Malay States or Archipelago, nor indeed been recorded from the Chinese Seas or elsewhere since Günther first described it more than half a century ago, I have no doubt as to the correctness of the identification, so far at least as Günther's meagre description (due as he himself tells us to " the specimen not being in very good condition, some parts being deformed by stuffing") goes.* The fishes recorded by de Vis as follows " *Polynemus multiradiatus*, Gth., ascends the Brisbane River " appertains to *Polydactylus specularis* de Vis, that gentleman having been probably misled by the increased number of dorsal and anal rays common to the two species.

Described from two examples, measuring respectively 108 and 136 millim., collected at Thursday Island by Capt. Donald McDonald. Reg. No. in the Queensland Museum I. 13/1034.

The following key to the genera of the *Polynemidæ* may be usefully inserted here :—

a.[1]	Preopercle entire ; anal fin of about 30 rays, much longer than the second dorsal	**i. Polynemus.**
a.[2]	Preopercle serrated ; anal fin of 11 to 17 rays, about as long as the second dorsal.	
b.[1]	Vomer toothed.	
c.[1]	Scales moderate ; free pectoral rays 3 to 9.	
d.[1]	Outer border of jaws rough ; pectoral rays simple ; no air-bladder	**ii. Eleutheronema.**
d.[2]	Outer border of jaws smooth ; pectoral rays divided ; an air-bladder	**iii. Polydactylus.**
c.[2]	Scales minute ; free pectoral rays 14	**iv. Polistonemus.**
b.[2]	Vomer toothless	**v. Galeoides.**

* See Note on p. 91.



POLYDACTYLUS MULTIRADIATUS (Günther). $1\frac{7}{10}$ Nat. Size.

A. R. McCulloch, del.

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BOTHIDÆ.

PLATOPHRYS PENNATA sp. nov.

Depth of body 1·88, length of head 3·66, of caudal fin 4·48 in length of body. Depth of peduncle 2·71, length of snout 4·22, diameter of eye 3·8, width of interorbit 11·87, length of maxillary 2·71, of mandible 2·37, height of dorsal 2·24, of anal 2·53, length of left pectoral 1·36, of left ventral 2·53 in length of head.

Body deeply ovate, the profile of the head from before the interorbital region evenly and strongly convex, as also is the snout in front of the rostrofrontal notch, which is deep. Mouth moderately arched, the jaws equal; mental knob little developed; maxillary extending to below the anterior border of the eye, the width of its truncate distal extremity 2·7 in its length. Lower eye about one third of its diameter in advance of the upper and a little longer than the snout; interorbital region reduced to a narrow mostly naked furrow, its width 3·12 in the eye-diameter.

Scales of colored side ciliated, arranged in 80 transverse series above the lateral line, and in 20 horizontal series between the dorsal fin and the summit of the arch; scales of blind side cycloid; snout and mandibles naked; a few scales superiorly on the maxillary. Depth of lateral line arch 2·4 in its length; no subsidiary nuchal branch.

D. 91; A. 73; C. 17; P. 14/11; V. 6. Dorsal fin originating on the blind side of the snout in front of the rostrofrontal notch, the third ray expanded and pinniform, much longer than the second or fourth, slightly longer than the post-median rays, and 2·1 in the length of the head. Caudal cuneate. Left pectoral with the base oblique, the upper rays longest, reaching well beyond the lateral line arch; length of right pectoral 1·93 in that of the left, the middle rays longest. Ventrals long, that of the eyed side inserted on the abdominal ridge, its base longer than and originating well in advance of that of the right fin; left ventral subcontinuous with the anal, the middle rays longest, reaching the third anal ray.

Gill-rakers rather short, stout, and acute, smooth, 10 on the lower branch of the anterior arch, the upper branch entire, the longest one fifth of the eye-diameter and one half of the longest gill-fringes.

Light brown with three large blackish spots forming a triangle, one above and one below the middle of the appressed pectoral, the third on the lateral line about midway between the tip of the pectoral and the root of the caudal; body with several series of smaller and fainter spots, arranged in a more or less regular transverse pattern. Vertical fins with a somewhat obscure series of dusky blotches; pectoral with broad darker and lighter cross-bands.

Described from a single specimen, 170 millim. long, in the collection of the Amateur Fishermen's Association of Queensland.

PLESIOPIDÆ.

PHAROPTERYX MELAS (Bleeker).

Plesiops melas Bleeker, Verh. Batav. Gen., xxii, 1849, Bali, p. 9.

Plesiops nigricans var. *apoda* Kner, Sitzb. Akad. Wien, 1868, p. 54. Based on a specimen which had lost its ventral fins.

Pharopteryx melas Jordan and Seale, Bull, U. S. Bur. Fisher., xxv, 1906, p. 261, pl. xxxviii, fig. 3.

Depth of body 3·1 to 3·4, length of head 2·75 to 3, of caudal fin 3·5 to 4, of pectoral 3·9 to 4, of ventral 2·8 to 2·85 in length of body. Depth of peduncle 2·1 to 2·2, length of snout 4·5 to 4·8, diameter of eye 3·5 to 4, width of interorbit 7 to 7·33, length of maxillary 1·9 to 2, of mandible 1·66 to 1·85, last dorsal spine 2·2 to 2·4, last anal 2·33 to 2·6 in length of head.

Dorsal and ventral contour about equally convex ; width of body 1·95 to 2·1 in its depth, which is 1·05 to 1·2 in the length of the head : caudal peduncle deeper than long, its least depth 1·8 to 2 in the depth of the body. Width of head a little less than its depth and 1·5 to 1·66 in its length, its upper profile from the forehead to the origin of the dorsal fin linear and but little acclivous. Snout short and blunt, its upper profile linear and rather strongly acclivous, forming an obtusely rounded angle with the frontal profile, its length 1·25 to 1·3, that of the flat interorbital width 1·8 to 2 in the eye-diameter ; preorbital very narrow. Maxillary extending to below the hinder border of the eye, the width of its distal extremity 1·35 to 1·5 in the eye-diameter. Vertical limb of preopercle convex, the angle broadly rounded and feebly corrugated ; opercular flap pointed.

Scales in 25 transverse series between the angle of the opercle and the root of the caudal, in 11 series in an oblique row from the vent forward to the dorsal ridge, 2 of which are above the lateral line. Lateral line tubes 19 or 20 in the upper line, 10 to 12 in the lower. Cheek-scales in 3 series.

D. x* or xi 7 ; A. iii 8 ; P. 20 or 21. Dorsal fin originating above the base of the pectoral ; first spine short, 2·65 in the last, which is 1·4 to 1·5 in the fifth and longest ray ; rayed fin reaching beyond the base of the caudal. Anal originating below the seventh or eighth dorsal spine, its first spine 2·1 to 2·2 in the last, which is 1·66 to 1·85 in the fifth ray ; soft portion similar to but higher than the dorsal rays, and just reaching to the caudal. Pectoral 1·3 to 1·4 in the length of the head, scarcely extending to above the vent. Ventral as long as or a little longer than the head, reaching to the second anal spine.

Gill-rakers 3 + 10, the longest 2·7 in the eye-diameter and as long as the gill-fringes.

Purplish brown, some of the scales occasionally gray usually with a dark central spot ; sides and lower surface of head (except the anterior branchiostegals

* In one example the first short spine is missing.

which are blackish), throat and abdomen smoke-brown. Vertical fins purple, the dorsal edged with white, the width of the band diminishing from the front ; pectorals uniform ; outer soft ray of ventral dull blue, the others brown transversely barred with whitish undulæ.

Described from two specimens, 78 millim. long, collected at Masthead Island by Mr. H. A. Longman.

CHEILODIPTERIDÆ.

AMIA NEMATACANTHA sp. nov.

(Plate XXII, fig. 1.)

Depth of body 2·38, length of head 2·86, height of spinous dorsal 2·28, length of caudal 2·82, of pectoral 3·48, of ventral 4·83 in length of body. Length of snout 3·93, diameter of eye 2·36, width of interorbit 3·96, length of maxillary 2·04, height of soft dorsal 1·13, of anal 1·42 in length of head.

Body ovate and strongly compressed, the dorsal and ventral contours about equally rounded : caudal peduncle stout, its least depth 2·37 in the depth of the body. Upper profile of head undulous, the nape without median ridge. Snout with convex profile, its length 1·66, that of the convex interorbital width 1·7 in the eye-diameter ; maxillary notched posteriorly, extending to below the middle of the eye. Inner limb of preopercle entire, outer serrulate at the angle and below.

D. vi, i 8. No procumbent dorsal spine ; the four middle dorsal spines filamentous ; the second longest reaching when laid back to beyond the base of the soft dorsal ; spine of soft dorsal much stronger than those of the spinous dorsal, its length 1·55 in the first ray, which, with those that immediately succeed it, are also more or less filamentous. A. ii 9. Second anal spine, 1·34 in that of the soft dorsal and 1·66 in its first ray. Caudal fin deeply emarginate. Pectoral long, extending to beyond the vertical from the anal spines. Ventral long, 1·3 in the pectoral, not quite reaching to the anal.

Pale yellow ; the head and anterior part of the body dotted with black (*νῆμα*, gen. *νῆματος*, thread ; *ἄκανθα*, spine).

Total length of type 45 millim.

Six specimens of a small cheilodipterid, collected by Dr. J. R. Tosh at Darnley Island, were received, but unfortunately with two exceptions they were in bad condition. The best example has been chosen as the type, and is here described and figured. Reg. No. I. 13/1273. Queensland Museum Collection.

Family LEIOGNATHIDÆ.

XYSTÆMA DARNLEYENSE sp. nov.

(Plate XXIII.)

Depth of body 2·4 to 2·65, length of head 2·9 to 3·2, longest dorsal spine 5 to 5·3, length of caudal 2·65 to 2·8, of pectoral 2·8 to 2·95, of ventral 4·95 to 5·4 in length of body. Length of snout 3 to 3·2, diameter of eye 3 to 3·15, width of interorbit 3·25 to 3·5, length of maxillary 2·8 to 3·25, of mandible 1·9 to 2·1, longest anal spine 2·5 to 2·75 in length of head.

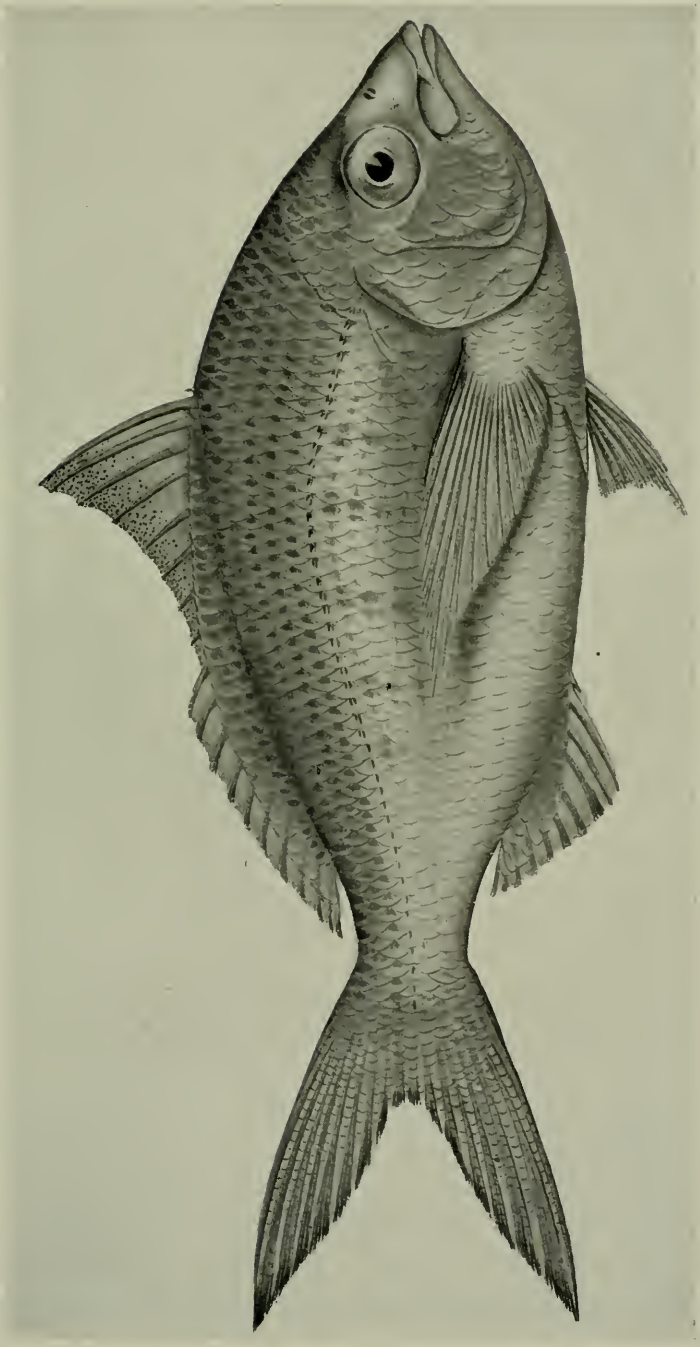
Body subovate, the dorsal contour rather more arched than the ventral, which is somewhat flattened behind the ventral fins ; width of body 2·35 to 2·4 in its depth, which is ·15 to ·3 more than the length of the head : caudal peduncle about one third longer than deep, its least depth 3·5 to 3·8 in the depth of the body and 2·8 to 3·2 in the length of the head. Head ·15 to ·25 longer than deep, its upper profile from the snout to the dorsal fin linear in small examples, becoming slightly convex on the nuchal region in the larger ; lower profile concave and more declivous than the upper. Snout obtusely rounded, as long as the eye-diameter, which is ·05 to ·25 more than the convex interorbital width. Jaws equal ; maxillary extending to below or a little beyond the anterior border of the eye, the width of its distal extremity 2·75 to 3·1 in its length. Preopercle entire.

Scales 6/47 to 50/13. Cheek-scales in three series ; scales on the upper surface of the head extending forward laterally nearly to the nostrils, mesially to above the anterior border of the pupil, the premaxillary groove broad and naked, rounded behind ; mandible naked. Accessory scale of ventral long and lanceolate, longer than the eye-diameter.

D. ix 10 ; A. iii 7. Dorsal originating above the insertion of the ventral ; spines weak and flexible, the second longest, as long as or a little longer than the snout and eye, and 1·9 to 2·2 in the depth of the body below it ; anterior soft ray equal to or a trifle longer than the fifth spine. Caudal deeply forked, the middle rays 3·4 to 4·4 in the upper lobe. Anal originating below fourth dorsal ray, the second spine somewhat stronger and a little longer than the third, which is subequal to the first ray. Pectoral pointed, reaching to or slightly beyond the origin of the anal, the seventh ray longest. Ventral inserted behind the base of the pectoral, the outer ray longest, reaching midway between its origin and the anterior anal rays ; origin of ventral nearer to that of anal than to tip of mandible.

Gill-rakers short and stout, 7 on the lower branch of the anterior arch, the anterior the longest, 3·9 in the eye-diameter and 1·4 in the longest gill-fringes.

Silvery, the upper parts tinged with yellow ; each scale above the lateral line with an obscure darker central spot, forming longitudinal bars, which follow the contour of the back ; below the lateral line are five series of much larger oblong brick-red spots. Naked parts of head pale olive or grayish green. Posterior dorsal spines and all the rays except the last with a narrow oblique blackish basal spot ; caudal



A. R. McCulloch, del. XYSTŒMA DARNLEYENSE Ogilby. Drawn from Type : $\frac{3}{4}$ Nat. Size.
Reg. No. in Q.M. : I. 13/1074.

Face page 86.

edged and tipped with dusky; a blackish spot in the axil of the pectoral. (*darnleyense*, belonging to Darnley Island.)

Described from four specimens, measuring from 145 to 222 millim., collected at Darnley Island by Dr. J. R. Tosh. Reg. No. of type in Queensland Museum, I.13/1074.

POMACENTRIDÆ.

GLYPHISODON Lacépède 1802.*

GLYPHISODON PALMERI sp. nov.

(Plate XXII, fig. 2.)

Depth of body 1·66 to 1·7, length of head 3·4, of longest dorsal ray 3 to 3·15, of longest anal 3·15 to 3·25, length of caudal 2·7, of pectoral 2·7 to 2·75, of ventral 2·55 to 2·8 in length of body. Depth of peduncle 1·65 to 1·7, length of snout 3 to 3·2, diameter of eye 3·2 to 3·25, width of interorbit 2·8 to 2·9, longest dorsal spine 1·55, longest anal 1·55, middle caudal rays 1·45, length of ventral spine 1·66 in length of head.

Body elevated, the dorsal contour evenly arched from the nape to the middle of the soft dorsal, beyond which it descends somewhat abruptly to the peduncle; ventral contour as evenly but more deeply arched from the isthmus almost to the peduncle, the depth of which is 3·4 in that of the body. Head one fourth deeper than long, its upper profile linear and strongly acclivous, forming an obtusely rounded angle with that of the nape. Snout short, much broader than long, rounded anteriorly, its length one tenth more than the eye and a trifle less than the strongly convex interorbital width. Cleft of mouth small and oblique, the maxillary extending to slightly beyond the vertical from the nostril, which is on a level with the middle of the eye and nearer to it than to the tip of the snout. Teeth in a single series, broad, compressed, and incisor-like, with the cutting edge emarginate; free tip of tongue rounded. Infraorbital ring narrow, its depth below the middle of the eye 4, that of the preorbital 2·7 in the eye-diameter, which is 1·15 in that of the inferiorly rounded cheek.

Scales in 28 transverse series between the angle of the opercle and the root of the caudal, in 18 horizontal series between the base of the dorsal and the vent, 5 of which are above the lateral line; cheek-scales in 4 series; infraorbital ring scaly throughout its entire length; scales of upper surface of head extending forward to between the nostrils, leaving the rest of the snout and the lower jaw naked. Lateral line with 20 or 21 tubular scales, ceasing below the middle of the soft dorsal, the

* I am unable to accept Forskal's *Abudefduf*, both because of its manifest barbarity, and because I cannot believe that a writer so enlightened, and so far in intellectuality beyond his immediate colleagues, ever intended that it should be used generically; but rather employed it as a stop-gap until he should decide on a more suitable name, similarly as other Arabian vernacular names were used by him. (See Jordan & Snyder, Proc. U. S. Nat. Mus., xxiv, 1902, pp. 606-7). I am authorized to state that Mr. McCulloch is in perfect agreement with me on this point.

tubes profusely branched, and, except a few posteriorly, not extending to the border of the scale ; accessory scale of ventral long and lanceolate, longer than the eye-diameter.

D. xiii 14 ; A. ii 14 ; P. 19. Last dorsal spine longest, 1·66 in the fifth and longest soft ray ; length of soft portion of fin 2·05 in that of the spinous, its outer border acutely pointed, extending to above the middle of the caudal fin. Caudal forked, with broadly rounded lobes, the middle rays 1·85 in the upper and longer lobe. Anal fin conterminous with the dorsal, the second spine as long as or longer than the last dorsal spine and 1·66 in the sixth and longest ray, which, though as high or nearly as high as the soft dorsal, does not reach so far back. Pectoral fin one fourth longer than the head, the fourth ray longest, reaching to the tenth or eleventh body-scale. Ventral nearly as long as to a little longer than the pectoral, the outer ray produced, extending nearly to to slightly beyond the origin of the anal, and twice as long as the spine.

Gill-rakers 5 + 12, rather short and stout, the inner margin spinulose, the longest 3·5 in the eye-diameter and 2·2 in the longest fringes.

Upper surface of body plumbeous or greenish gray, shading gradually on the sides into the silver-gray of the belly, many of the scales above the lateral line with a more or less conspicuous silvery spot or vertical bar ; body with seven black cross-bands, the first from the nape to the axil of the pectoral ; the second from the bases of the first and second dorsal spines, behind the base of the pectoral, to the abdomen ; the third from the fifth and sixth spines beneath the third quarter of the appressed pectoral ; neither of these two cross the ventral surface ; the fourth from the ninth and tenth spines below the tip of the pectoral to the vent, these three encroaching on the dorsal fin ; the fifth between the last dorsal spines and the anterior anal rays ; the sixth between the last dorsal and anal rays, on both of which it extends ; and the last and least conspicuous, which forms a complete ring round the peduncle immediately in front of the caudal fin, and is chiefly noticeable as two black pre-caudal spots, the one on the upper the other on the lower edge of the peduncle. Head and throat like the back, with scattered silvery spots and bars, which sometimes, especially below, almost obliterate the ground color. Iris dark blue. Dorsal, anal, and ventral fins black, with the base and, in the case of the two former, the produced rays lilaceous gray, as also are the caudal and pectoral fins. (Named for my friend Mr. James Palmer, chief of the telegraph station at Bulwer, M.B.,* and one of my best and most enthusiastic collectors.)

Total length to 170 millimeters.

Range (as at present determined) :—Moreton Bay and its immediate neighbourhood.

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* The Moreton Bay Telegraph Station has just lately been removed from Bulwer to Cowan Cowan, and I seize this opportunity to wish Mr. and Mrs. Palmer all happiness and success in their new home, which will, let us hope, prove as fertile a collecting ground as that which they have now left.

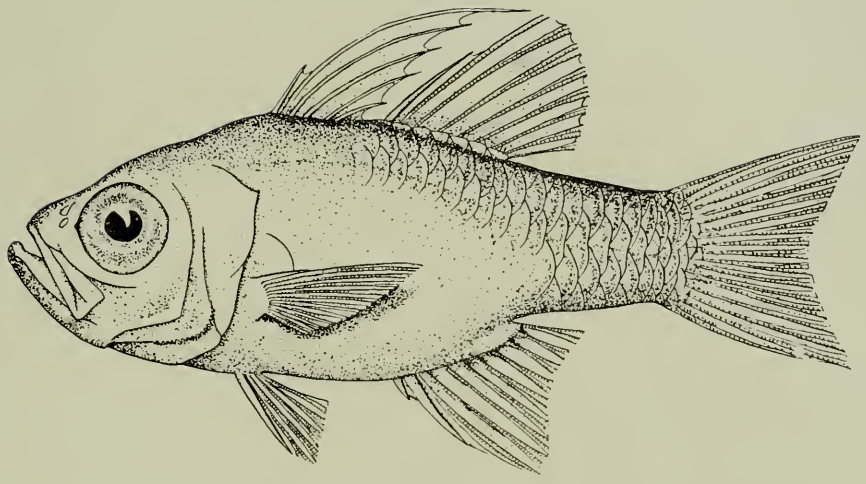

Fig. 1.—AMIA NEMATACANTHA Ogilby. Drawn from Type: $2\frac{1}{2}$ Nat. Size.
D. B. Fry, del. Reg. No. in Q.M.: I. 13/1273.

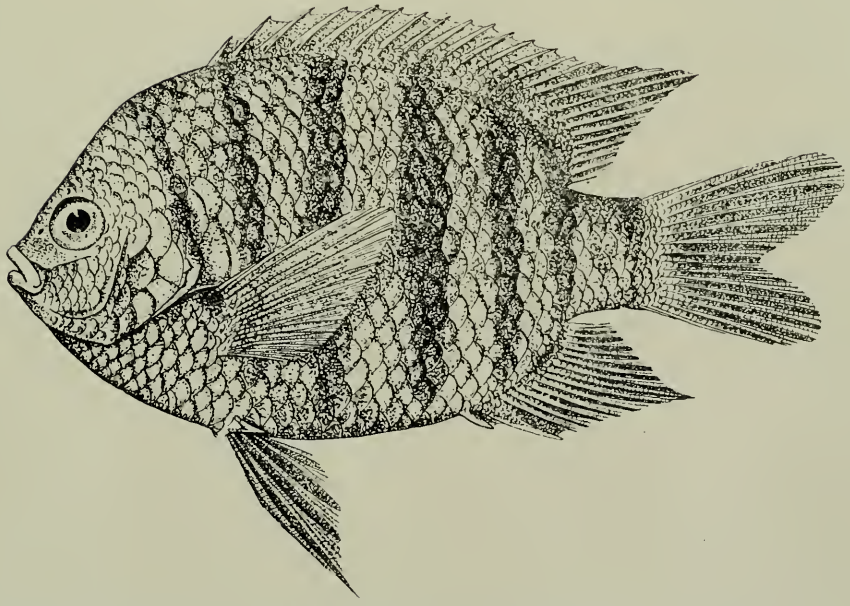

Fig. 2.—GLYPHISODON PALMERI Ogilby. Drawn from Type: $\frac{2}{3}$ Nat. Size.
D. B. Fry, del. Reg. No. in Q.M.: I. 13/1059.

Face page 88.

Described from two specimens, 160 and 170 millim. in respective length, taken at Bulwer, Moreton Bay, by Mr. James Palmer. The larger, which I have selected as the type, is in the collection of the Queensland Museum, Reg. No. I. 13/1059 ; the smaller, a topotype, in that of the A.F.A.Q.

The only other specimen of which I have any definite knowledge is in the Australian Museum, Sydney, and of this McCulloch, in answer to a letter in which I forwarded a copy of the above description, writes—" The third is 50 millim. long from Caloundra. It is certainly your fish, and Waite also called it *G. bengalensis ?* ". In an earlier part of the same letter he says, of three specimens in that collection—" The largest, about 130 millim. long, is named *G. affinis* Günther, and is from Batavia. It is part of the Day collection and was originally labeled *G. sordidus*, which it is not ; I do not know who determined it as *affinis*, but it agrees with the description of that species. It is well represented by Bleeker's figure, which he calls *G. bengalensis*, but is quite different from Day's figure of this last species. The second is 65 millim. long, and is from Sweer's Island, Gulf of Carpentaria. I have little doubt that it is the young of the other though the positions of the fifth and sixth bands are a trifle different, being more like your sketch. Waite determined it as *G. bengalensis ?* "

From all this it is clear that there was considerable doubt in Waite's mind as to the identity of the three Australian Museum specimens, at which perhaps little wonder need be expressed, considering the confusion which evidently exists between the identifications of Günther, Bleeker, and Day.

It is plain that the Moreton Bay fish needs only to be compared with three species—*Glyphisodon septemfasciatus* Cuvier & Valenciennes,* *G. bengalensis* Bloch,† and *G. affinis* Günther,‡ the type localities of which are respectively " l'Isle de France," " East Indies," and " China." Leaving aside the difference in the pattern of coloration, which applies equally to all three species, the first may be at once dismissed because of its much shallower body, larger head (4 to 4·25 in total length, *fide* Bleeker and Day, as against 4·6 in my type), the much larger naked area on the upper surface of the head, as described by Günther but not as figured by Bleeker, which more closely approaches to that described above, the pointed caudal lobes, etc., etc.

From the *G. bengalensis* and *G. affinis* of Günther's Catalogue our species differs among other characters in the much narrower infraorbital ring and the larger number of scales in a transverse series. In the former character it is more in agreement with Day's figure of *G. cœlestinus* and Bleeker's of *G. bengalensis*. As a matter of fact these three authors have between them so inextricably confused the transversely banded glyphisodonts that a critical examination of numerous specimens from various localities has become urgently necessary.

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* Hist. Nat. Poiss., v, 1830, p. 463.

† Ausl. Fisch., pl. cexiii, fig. 3.

‡ Brit. Mus. Catal. Fish., iv, 1862, p. 41.

ICHTHYOLOGICAL NOTES.

By J. Douglas Ogilby.

During the past year a number of fishes have been forwarded from Darnley Island by Dr. J. R. Tosh, among which are the six following additions to the Australian fauna :—

1. Nebrius concolor Rüppell. This is useful as a confirmation of Macleay's record of its occurrence at Port Moresby, N.G. (v. Proc. Linn. Soc. N. S. Wales, vii, p. 597).

2. Platophrys pantherinus (Rüppell). It is strange that no record of the presence of this fish in Australian or Papuan waters has hitherto been made, since it is apparently common at Darnley Island, whence we have received six examples.

3. Amphiprion bifasciatus (Bloch). One specimen.

4. Eleria tala (Cuvier & Valenciennes). Two young fishes.

5. Salarias alboapicalis Ogilby. Two beautiful examples, one adult (75 millim.), the other half-grown.

6. Lethrinus harak (Forskål). The only previous Australian record is the curt " Aus Sydney " in the Reise Novara, Fische, p. 81 ; as it has been shown that a number of species in that work were wrongly attributed to that locality, this record should be viewed with distrust.

For the following six Darnley Island is a new record :—

1. Carythroichthys intestinalis (Ramsay). Previously recorded as *C. waitei* from Cairns Reef, Cooktown, N.Q., by McCulloch (v. Proc. Linn. Soc. N. S. Wales, xxxv, p. 307).

2. Cromileptes altivelis (Cuvier & Valenciennes). Previously collected by McCulloch at Cairns Reef.

3. Kyphosus cinerascens (Forskal). Recorded from Torres Strait as *Pachymetopon squamosum* by Macleay (Ibid., v, p. 407).

4. Decapterus russellii (Rüppell). A fine specimen gave me the chance of comparing the Moreton Bay fish, previously recorded as " *Decapterus ? leptosomus* Ogilby (List Edib. Fish. Moreton Bay, p. 2) ; and I am now convinced that, while differing from the latter, both specimens are identical with the former, and probably with *Caranx ecclipsifer* de Vis. (Proc. Linn. Soc. N. S. Wales, ix, p. 541).

5. Amblygobius phalæna (Cuvier). Recorded from Murray Island by McCulloch (Ibid., xxxvi, p. 347).

6. Valenciennea longipinnis (Bennett). Previously recorded and figured by Waite from specimens collected by Hedley at Green Island, Cairns. (Rec. Austr. Mus., iv, p. 271, pl. xliii).

A small but highly interesting collection was also received from Capt. McDonald, who had collected them at Thursday Island. The following species are worthy of inclusion here :—

1. Tylosurus caudimaculatus (Cuvier). Not hitherto recorded from Queensland, the only other Australian record being "Port Darwin" by Macleay (Ibid., ii, p. 363).

2. Polydactylus multiradiatus (Günther). Two small polynemids differing from all the other Australian members of the family in the forward position of the anal fin, which originates in advance of the soft dorsal. As they agree fairly well with Günther's description of the above species, I wrote to Mr. Tate Regan asking him to examine the type, a badly mounted specimen, as to this character. This he very kindly and promptly did, with the result that he wrote me that, so far as it was possible to judge from the state of the specimen, this was the case. We may, therefore, congratulate ourselves on the rediscovery of this Chinese species, of which so little was previously known.

3. Priopis marianus (Günther). Two specimens ; thus extending its range so far north from the Mary River.

4. Trichiurus haumela (Forskal). A beautiful specimen, which enables me to add this fish to the Australian fauna with certainty, previous records being open to doubt.

Note on the Australian Trichiuri.—The first record of the occurrence of a *Trichiurus* in Australian waters was made by Macleay in 1878 (Ibid., p. 354), when he notices a specimen of *T. savala* collected by Spalding at Port Darwin ; three years later he adds *T. haumela* from "Port Jackson and Newcastle (Ibid., v, p. 524). This identification, however, is incorrect, Macleay being unaware of the presence of a third species on the coast of New South Wales. This fish, which is most erratic in its appearances, was subsequently described as *T. coxii* by Ramsay & Ogilby (Proc. Linn. Soc. N. S. Wales, xii, p. 562), and to it Macleay's *T. haumela* record properly applies. No further reference to these fishes is made in any Australian work until 1893, when Kent (Great Barrier Reef, p. 288) referred to specimens of both *T. savala* and *T. haumela* as having "been contributed to the Queensland Museum." What is probably the former of these specimens is now on exhibition there and was obtained in Moreton Bay, but the specimen of *T. haumela* can not be found.

The following eight species also claim recognition for one reason or other :—

1. Anchovia setirostris (Broussonet). A specimen is in the Queensland Museum collected at Cooktown by the late Mr. Kendal Broadbent.

2. Zenarchopterus dispar (Cuvier & Valenciennes). Three specimens, labeled " Torres Strait," are in the same collection.

3. Sphyræna novæ-hollandiæ Günther. One specimen from Moreton Bay.

4. Trachichthys australis (Shaw). One from Pimpama Island, M.B.

5. Mionurus gillii Steindachner. This species may be added to the already long list of cheilodipterids which carry their eggs in the mouth ; two examples thus engaged were sent from Eidsvold by Dr. T. Bancroft.

6. Acanthoclinus littoreus (Forster). The State Museum is indebted to Mr. J. L. Bond for a specimen collected in Moreton Bay. It had been previously obtained at Masthead Island by both McCulloch and Longman.

7. Cæsio cærulaureus (Lacépède). Not uncommon on the Snapper Grounds. off Moreton Bay, where it is known as the " Fusilier."

8. Rupellia echinocephala (Rüppell). Originally described from the Red Sea, this curious little fish was next recorded from the " China Seas" by Dr. Günther (Brit. Mus. Catal. Fish., iii, p. 35), and subsequently from Bowen (Fische d. Sudsee, p. 174, pl. cviii, fig. D). The writer collected a specimen on Nor-West Islet in 1910, and Longman obtained some fine specimens on Masthead Island two years later.

9. Lactophrys reipublicæ. This name is proposed for the Australian three-angled ostracionid. *Ostracion concatenatus* Bloch is a synonym of the East Atlantic *O. triqueter* Linnæus, described originally from one of Plumier's drawings, its habitat being " Les Antilles," as we are told by Bonnaterre.

The following Devisian species have come into notice during the year :—

1. Sphyræna strenua (Proc. Linn. Soc. N. S. Wales, viii, 1883, p. 287) is *S. obtusata* Cuvier & Valenciennes, as also I think is *S. lineata* Stead (Edib. Fish. N. S. Wales, p. 47, pl. xv).

2. Dactylophora semimaculata (Ibid., p. 284) is *Cheilodactylus nigricans* Richardson (Proc. Zool. Soc., 1850, p. 63) and *C. nebulosus* Klunzinger (Arch. f. Nat., xxxviii, i, 1872, p. 24). It is also identical with *Psilocranium coxii* Macleay (Ibid., viii, p. 440). De Vis' genus, however, stands as it predates Macleay's by a few months. The correct name is, therefore, *Dactylophora nigricans* (Richardson).

3. Chœrops perpulcher (Ibid., ix, 1884, p. 877) is *C. cephalotes* Castelnau (Res. Fish. Austr., 1875, p. 39), as also is *C. hodgkinsoni* Kent (Great Barrier Reef, p. 296, pl. xv, fig. 2—much too highly colored). Correct name *Chœrodon cephalotes* (Castelnau).

4. Chœrops olivaceus (Ibid., p. 876) is *C. concolor* (Ibid.) and *C. unimaculatus* (Ibid., p. 877), not of Cartier 1873. Correct name *Chœrodon olivaceus* (de Vis).

5. Chœrops graphicus (Ibid., p. 878) is *Sparus anchorago* Bloch (Ausl. Fisch., v, p. 108, pl. cclxxvi). Correct name *Chœrodon anchorago* (Bloch).

6. Chœrops venustus (Proc. Roy. Soc. Queensland, i, 1885, p. 147) is a valid species. This is the fish described by me as *Chœrops ommopterus* Richardson (Proc. Zool. Soc., 1889, p. 158 & Edib. Fish. N. S. Wales, p. 130). Correct name *Chœrodon venustus* (de Vis).

7. Chœrops albigena (Proc. Linn. Soc. N. S. Wales, ix, 1885, p. 876). This may be a good species, but it approaches very closely to *Labrus macrodontus* Lacépède (Poiss., iii, 1802, pp. 451 & 522), from which it differs only in the absence of a posterior canine and the coloration as given by Macleay. Correct name *Chœrodon albigena* (de Vis).

8. Tetraroge bellona (Ibid., p. 460) is *Cottus australis* Shaw (in White, Voy. N. S. Wales, 1790, p. 266). Correct name *Centropogon australis* (Shaw).

NOTE ON PORTHEUS AUSTRALIS, A. S. Woodward.*

By H. A. Longman.

In response to a series of letters sent out by the Director, the Queensland Museum has recently received several new collections of fossils. Two of these are of exceptional interest, as they represent Teleostean fishes of which, so far, only very fragmentary or distorted remains have been found. These specimens have been kindly forwarded by Mr. S. Dunn from Lower Cretaceous beds near Hughenden in the vicinity of Flinders River.

The larger specimen was forwarded with one lateral surface almost completely covered with a matrix of fine hard limestone, in which were lying several Inoceramus shells, whilst on the reverse side was exposed a large conical tooth. Fortunately we were able to cut away the matrix to a great extent, and the maxillæ and dentaries were exposed. As a result we have no hesitation in identifying our specimen with *Portheus australis,* A. S. Woodward, the type of which came from the same district, and which, through the courtesy of Mr. B. Dunstan, Queensland Government Geologist, we have had an opportunity of examining.

Mr. R. Etheridge, junr., has described under the name of *Ichthyodectes marathonensis*† another specimen from an adjoining locality, which he says "bears a very suspicious resemblance" to *Portheus australis.* But Mr. Etheridge's species was described from a skull "crushed from above downward." in which the premaxillæ and anterior teeth are missing. He expressed the opinion that *Portheus australis* possibly could be referred to the allied genus *Ichthyodectes*, in which the anterior teeth are not enlarged. Our example is of some interest because it contains remains of both upper and lower anterior teeth, which are relatively very large. The maxillæ exposed in this specimen are barely 5½ inches in length. The right side exhibits remains and alveoli representing about twenty-four teeth, a part being still obscured by the hard matrix. Owing to the abrasions of the upper surface of the right maxilla and the consequent partial exposure of the alveoli, it would be difficult to estimate the real length of the teeth above the original margin. In their present state the larger teeth in the middle of the maxilla are 15 mm. in length, whereas the exposed part of the lower anterior tooth is much more robust and is 20 mm.

* Woodward—Ann. Mag. Nat. His., ser. 6, xiv (1894), p. 444, plate x, figs. 1, 1a.

† Records Aus. Mus., vol. vi, pt. i, p. 5 (1905) plates i & ii.

Remains of two upper teeth are shown in the matrix in the region of the premaxillæ. One of these is very stout, the oval section being 7 mm. in diameter. Our specimen thus confirms the original generic classification of the type. The Family *Saurodontidæ* having been restricted by Crook to the genera *Saurocephalus*, Harlan, and *Saurodon*, Hays, these specimens should be placed in the Family *Ichthyodectidæ*, Crook.*

Our specimens show several of the bones of the head in fair condition, the longitudinal crest being well marked. In the posterior upper portion of the fossil remains of several vertebræ may be distinguished. Comment on these and other features must be left for more expert hands. In the second specimen received from Mr. Dunn, the jaws are more fragmentary, and the dentition does not contain the anterior teeth. It is hoped that further examples from the same district will be shortly available, in order that duplicates of these interesting fishes may be secured for other institutions.

* Zittel—Textbook of Palæontology, vol. ii, 1902, p. 95.

SOME FIELD NOTES ON QUEENSLAND INSECTS.

By Henry Hacker, F.E.S.

Order HYMENOPTERA, Family SPHECIDÆ.

Sphex (Isodontia) nigellus, Smith.*—The recorded habits of members of the genus Sphex show much similarity. They have generally been found to make underground burrows terminating in a chamber, in which they store different kinds of insects as food for their young. This season I had an opportunity of observing something of the economy of *Sphex nigellus,* and can record a remarkable difference from the usual habits of wasps belonging to the genus.

This species utilises for nests old beetle burrows in posts and dead trees, which it closes by stopping tightly with grass-seeds. On several occasions while examining posts full of old disused tunnels, which had evidently been made by some beetle, I had noticed that a number of the holes had been recently used by some other insect which had stopped them up with grass-seeds, leaving tufts protruding about a quarter of an inch. I did not connect this fact with the wasp until some time later, when Professor Skertchly brought to the Museum part of a large log similarly affected. This block was cut in two, one piece being left intact with the intention of breeding out the insects. The other piece was chopped up, thus exposing the tunnels. The section of a tunnel when exposed gave one a good insight into the methods of this wasp. In nearly every instance the tunnels were found to curve downwards from the entrance for about half their length, the rest of the distance being nearly horizontal; the average length was from three to four inches. The egg was evidently laid at the extreme end of the tunnel, a space large enough for the metamorphoses of the insect being left there. In this space also was stored the provisions (consisting of spiders) for the larva. The remainder of the tunnel was packed with grass-seeds, which were loosely packed at first, but got tighter as the entrance of the tunnel was reached. The grass-seed used by this wasp for the purpose of plugging the entrance to the tunnel is *Andropogon pertusus,* Willd. (Queensland Flora, vol. 6, p. 1863), which it skilfully manages to place with all the axillary ends directed inward, leaving the plumose ends protruding like a brush. Taking into consideration the shape of the seeds, and the fact that the wasp had to push them in from the outside, this was the only method by which it could plug the hole tightly. This arrangement made the tunnel quite

* The insects mentioned in this paper are exhibited in the Insect Court at the Queensland Museum.

impregnable against the attacks of enemies from the outside, whilst it enabled the mature wasp inside to push its way out without much difficulty.

Most of the tunnels exposed by splitting the log contained either a larva or a pupa. In two instances tunnels contained a fully developed wasp ready to emerge. In some of the tunnels, however, the matured insect had already emerged. In these cases a small quantity of loose grass-seed remained in the part where it had been packed loosely, while the entrance was quite open. From this I concluded that the insect, in order to escape, had forced its way past the loosely packed seeds and pushed out bodily the tightly packed plug at the entrance.

R. E. Turner states*—"This species seems to occur throughout Southern Asia and also in West Australia." It would be interesting to know if this insect has a similar economy in Asia, or whether it has acquired the above habits only in Australia.

The Director of the Queensland Museum is indebted to Professor Skertchly for drawing his attention to these insects in the first place.

Superfamily VESPOIDEA.

Family POMPILIDÆ.

Pseudagenia camilla, Turner.—A number of the clay cells of this species were obtained in Victoria Park, Brisbane, on May 24th. They were all attached a few inches above the ground to the sides of large stones where the slope was sufficient to give them shade and shelter. Most of the cells were placed singly. In some cases there were two and three together, fastened side by side, but never more than three. They were oval in shape, 14 mm. long and 7 mm. broad, being very neatly and symmetrically made with small pellets, which gave them a granulated appearance. On opening one of the cells it was found to contain a pupa enclosed in a thin transparent skin. The wasps emerged between the 6th and 12th of June. They eat a small circular hole in the end of the cell just large enough to enable them to escape. After emerging, they rest for a few minutes on the outside of the cell, but soon become very active, running and flying about the jar in which they were confined.

This wasp is easily identified by the shape of the clypeus, which is produced at the apex into a long blunt tooth. This character at once separates it from the other species of the genus.

Family THYNNIDÆ.

During last season I paid special attention to the wasps belonging to the above family, the total number collected in the Brisbane district being seventy-five species. Out of forty species which have been examined by R. E. Turner,

* Proc. Zool. Soc. Lond. 1908, p. 467.

twelve species, or 30 per cent. of them, were new to science. The remainder have not yet been identified. The majority were taken on various flowering shrubs, the most attractive flowers being *Leptospermum flavescens, Leptospermum scoparium, Bœckea virgata,* and *Lomatia silaifolia.*

One species of Thynnid, *Ariphron petiolatus,* Sm., according to my experience, seems to be exceptional in that it does not frequent flowers to the same extent as the other species. Out of twelve specimens taken during the season, one male was caught on the wing, one male and female were caught in copulation on the wing, four pairs were taken in copulation on the trunk of a standing dead tree, and one male only was taken on flowers.

An interesting fact which I have observed regarding the history of these wasps is that a number of the small and medium-sized species are double-brooded, and the point may assist in throwing some light on the earlier stages of these insects. *Thynnoturneria cerceroides,* Sm., *Rhagigaster unicolor,* Guér., *Thynnoides fulvipes,* Guér., *Lestricothynnus sp.* new, and three undetermined species were taken on Leptospermum flowers in September, and greatly to my surpise the same seven species were again captured at the end of April, a number of them being in copulation on flowers of *Bœckea virgata,* which, owing to the unusually wet summer, was then flowering for the second or third time. The fact that a number of this late brood were taken in copulation shows that they were newly emerged and not stragglers from the spring brood, and I am further of the opinion that this proves that the hosts are double-brooded also.

Superfamily ICHNEUMONOIDEA, Family EVANIDÆ.

Megalyra fasciipennis, Westwood.—This usually rare insect was captured around Brisbane in four different localities during last season. At Tambourine Mountain, on October 23rd, several females were taken flying round the trunk of a standing dead tree in a newly burnt "clearing." Another female was taken on October 28th (on a fallen tree) at Morningside, near Brisbane. On the occasion of a fortnight's collecting trip on Stradbroke Island during December, both sexes were caught on some grey gums felled the previous year. At Kelvin Grove during the first week in January, a capture of both males and females was made on trees cut down four months previously.

During the Stradbroke trip, being desirous of obtaining a good series of this curious insect, I visited the same logs every day for eight days, but did not see any females although the males were plentiful. On the ninth day, however, the females appeared, and afterwards were as numerous as the males. One female was observed with her ovipositor wedged so tightly in a crevice in the bark that there was no difficulty in catching her without the aid of a net.

On chopping into the log several larvæ and pupæ of a Longicorn Beetle were found, which were ascertained by breeding out to be *Phoracantha recurva,* Pascoe. It is fairly certain that the female Megalyra was ovipositing in one of the beetle larvæ when captured.

Superfamily PROCTOTRYPOIDEA.

Aphanomerus rufescens, Perkins.*—This wasp is parasitic in the eggs of the Homopterous insect *Colgar peracuta,* Walker, belonging to the family Fulgoridæ. The host is a common insect in our fields and gardens, and lives upon a number of different trees and shrubs. Its egg capsules are disc-shaped, pale green in colour, and are firmly glued to the underside of the leaves; the side nearest the leaf being flat, while the outer side is convex. There are usually between forty and fifty eggs in each capsule. The eggs are ovate-oblong, with a carina at each end extending longitudinally for about one-third of the length. These carinæ split when the eggs hatch, making elongate openings through which the young nymphs escape. The parasite, however, does not emerge through the longitudinal carina as does the rightful occupant, but eats a small hole in the side of the eggshell.

There appear to be several broods of *Colgar peracuta* in the course of a year, but, judging from the few scattered observations which were made, I am inclined to think that the parasite only attacks eggs belonging to the winter brood.

Last June and during the early part of July the parasites were observed in numbers on the underside of Canna leaves. A few were seen walking about the leaves, but the majority were in groups, quite stationary, in the immediate vicinity of small clusters of the Fulgorid nymphs. These nymphs were seen at the same time on the underside of the leaves. Towards the middle of July the nymphs had become adults, and the parasites had entirely disappeared. No more parasites were seen until June of the following year, when they again occurred in numbers under similar conditions.

We are indebted to Mr. A. A. Girault for his kindness in the identification of the parasite.

Order COLEOPTERA, Family TENEBRIONIDÆ.

Byrsax macleayi, Pascoe.—In November, 1912, while collecting insects on Tambourine Mountain, I came across some large dead fungi of the genus Polyporus attached to a fallen tree. On breaking a piece it was found to contain several beetle larvæ. These were not minutely examined at the time, but it was noted that they were white, shining, semi-transparent, short, stout, and about the size of a pea. They were scattered through the fungus, each larva

* Bull. Agricultural Exp. Stat. Hawaii, i, p. 202.

being isolated in its own chamber or cavity. A tin was filled with pieces of the fungus, and was examined at intervals on subsequent occasions. On February 3rd, 1913, one of the beetles emerged, and it was found to be a peculiar fungus-beetle, *Byrsax macleayi*. The rest of the fungus was then broken up and several specimens of the same species were obtained. They were all fully developed, although each individual was confined to its own cavity. A few, however, were rather soft and of a reddish brown colour, evidently only just having changed from the pupal state, but no pupæ were seen. There was a quantity of excrement in the form of fine dust in each cavity containing a beetle.

While extracting the beetles a fully developed specimen of a beetle (near, if not a Pylus) of the Cleridæ was obtained in one of the Byrsax cavities. As the fungus had been kept in a tin with a tightly fitting lid since it was obtained, it seems probable that the Clerid was predaceous upon the Byrsax larvæ. And as the majority of species of the Cleridæ are known to be predaceous upon other insects, finding this specimen actually in the cavity formed by a Byrsax makes it almost certain that it does feed upon that species.

Order NEUROPTERA, Family ASCAPHALIDÆ.

Stilbopteryx costalis, Newman.—This remarkable insect, which is the largest representative of the family, occurs on Stradbroke Island, and may be captured in numbers in December, when one is acquainted with its habits. They appear on the wing at sunset and can be seen until it becomes too dark to distinguish anything. They fly strongly about fifteen to twenty feet from the ground, just clearing the tops of the bushes and stunted trees, evidently catching other insects on the wing in the same manner as do the Odonata. This Ascaphalid, however, differs considerably in its method of flight from that of a Dragonfly. It does not attempt to swerve, or change its course suddenly, but continues very swiftly in a straight line. The best method to effect capture is to attach the net to a long stick, and when one is seen approaching to suddenly raise the net, holding it up in its line of flight. If the distance has been judged correctly, the insect will fly straight in, as it seems incapable of making a sudden swerve.

R. J. Tillyard (to whom we are indebted for the identification of the above insect) informs me that it is widely distributed from Cape York to the Blue Mountains, and also in South-western Australia, and that it is very variable. He also says: "This insect, together with a Brazilian species, form together the subfamily Protascalaphinæ, distinguished by their large size and short antennæ. Some authors still regard them as Myrmelionidæ, but the truth is that they are an archaic group standing near the base of the phylogenetic stem out of which both Ascalaphids and Myrmelionids arose."

AUSTRALIAN HYMENOPTERA CHALCIDOIDEA—I.

SUPPLEMENT.*

By A. A. Girault.

The following additions have been made.

Family TRICHOGRAMMATIDÆ.

CHÆTOSTRICHINI.

Genus NEOBRACHISTA Girault.

1. NEOBRACHISTA NOVIFASCIATA Girault. Female.

Differs from the type species in being more robust and the abdomen has but three transverse black stripes, the second of which is interrupted at the meson. Also, the thorax has a distinct median sulcus. In *fasciata,* there is a median groove on the scutellum only.

Habitat: Nelson (Cairns), Queensland. Forest, 1,500 feet.

Type: No. *Hy 1597*, Queensland Museum.

2. NEOBRACHISTA FASCIATA Girault.

A. NEOBRACHISTA FASCIATA NIGRIVENTRIS new variety.

Female:—Like the typical forms but the abdomen wholly black, accented into three or four broad black stripes evenly distributed over the surface, that is, equally distant from each other. The difference is a striking one when viewed with a lens but structurally the two agree as far as I could make out and I hesitate to pronounce the difference as one of specific value.

Described from one freshly mounted female captured by sweeping forest on the foothills of the coast range of mountains, July 9, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1598*, Queensland Museum, the above specimen on a slide.

Genus UFENSIA Girault.

Differs from *Ufens* in having the abdomen conic-ovate, the ovipositor inserted at its base and very distinctly exserted for a third of the abdomen's length. The twisted funicle separates the genus from *Japania.* The type is the following species.

* *See* Vol. I, Memoirs of the Queensland Museum, pp. 66-116.

1. UFENSIA PRETIOSA Girault. Female. Genotype.

Black. Head and base of abdomen centrally, orange yellow; occiput black. Legs black, the knees, tips of tibiæ and tarsi white; hind tibiæ nearly all white. Wings hyaline. Hind wings with three long rows of discal cilia. Marginal cilia of fore wing very short. Habitus of *Ufens*.

Habitat: Nelson (Cairns), Queensland. Forest.

Type: No. *Hy 1173*, Queensland Museum.

GENUS UFENS Girault.

SUBGENUS PARUFENS Girault.

The antennæ bear two (apparent) ring-joints; the funicle 1-jointed, much wider than long.

Type: The following species.

1. PARUFENS ARGENTIPES Girault. Female. Genotype.

Black; knees, most of front tibiæ, tips of other tibiæ and first two tarsal joints silvery white. Wings hyaline. Vertex orange yellow. Hind wings with three lines of discal cilia, the caudal one faint.

Habitat: Capeville (Pentland), Queensland. Forest.

Type: No. *Hy 1599*, Queensland Museum.

The genus *Ufens* has but one ring-joint, the funicle 2-jointed and longer than the pedicel.

GENUS JAPANIA Girault.

This genus has but one ring-joint.

GENUS ABBELLA Girault.

Synonyms: *Brachistella* Girault; *Jassidopthora* Perkins.

The genus bears two ring-joints.

1. ABBELLA MIRA Girault. Female.

Differs from *subflava* in bearing a larger substigmal spot, a short oblique line of discal cilia from the stigmal vein and the fore wing is nearly completely crossed by the substigmal spot.

Habitat: Townsville, Ayr, Nelson and Stewart's Creek, Queensland. Forest.

Type: No. *Hy 1272*, Queensland Museum.

The specimen of *subflava* formerly recorded from Townsville was this species. A female was taken at Nelson, N.Q., August 31, 1913, in forest.

2. ABBELLA XANTHOGASTER Girault.

Proserpine and Ayr, Queensland.

3. ABBELLA SUBFLAVA Girault.

Halifax (Ingham), Queensland, February, 1913 by sweeping margins of roadway adjoining cane.

4. ABBELLA IMMACULATA new species.*

Female:—Length, 0·70 mm.

Like *mira* but the abdomen without markings (in *mira* the abdomen has three distinct black spots down each side, larger caudad; these were mentioned in the original description of that species and are very distinct, the last two forming cross-stripes); also the substigmal spot does not cross the wing and there are four irregular setæ in the short oblique line of cilia from the stigmal knob. Antennal club dusky.

Male:—Not known.

Described from a single female captured by sweeping low vegetation in the forest, on the side of Mount Pyramid (about 500 feet), November 21, 1911.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1600*, Queensland Museum, the above specimen on a slide (mounted with a female of *Trichogramma australicum*).

Genus OLIGOSITA Haliday.

1. OLIGOSITA PULCHRA Girault.

In grass, Cromarty; on window, Ayr, Queensland.

2. OLIGOSITA GROTIUSI new species. Female.

Oligosita hilaris Perkins, in Part I., p. 82.

The specimen upon which this species is based differs too much from the original description of *hilaris* to be that species and it is quite distinct if Perkins's description is correct. The species lacks the terminal seta of the antenna as in *fuscipennis*.

Habitat: Torres Strait. Forest.

Type: No. *Hy 1601*, Queensland Museum.

3. OLIGOSITA POINCAREI new species.

Female:—Length, 0·62 mm. Usual in size for the genus. Golden yellow marked with sooty; substigmal spot present, distinct; abdomen yellow except at distal third beneath, above at distal third or more with about three dusky

* Magnification of this and other species as previously.

transverse stripes more or less confluent; wings subhyaline; longest marginal cilia of fore wing a little over half those wings' greatest width; antennæ ending in the usual large seta; funicle joint slightly shorter than the pedicel; discal ciliation of fore wing distinct, about eleven lines, mostly regular. Substigmal spot short. Funicle joint longer than proximal club joint.

Head, meso- and metapleura, coxæ and distal half or more of hind femora sooty or dusky. Legs otherwise tawny. Antennæ dusky. Cephalic part of scutum dusky. Allied with *aurea* but the fore wings are broader, less densely ciliated, the cilia shorter, all the coxæ black; the fore wing is really obscurely, slightly infumated, somewhat distinctly so under the submarginal vein proximad of the bend from which there projects a short blackish dot; no distinct stripes.

Male:—Not known.

Described from one female captured by sweeping in the forest along the foothills of the coast range, July 9, 1913 (A. P. Dodd). Dedicated to Jules Henri Poincaré.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1602*, Queensland Museum, the above specimen on a slide (with the type of *Encarsia justitia* Girault).

PSEUDOLIGOSITA new genus.

Female:—Like *Oligosita* Haliday but the fore wings broader, their marginal cilia short and the pedicel and funicle joint of the antennæ are elongate, the funicle joint twice or more longer than wide.

Male:—Not known.

Type: The following species.

1. PSEUDOLIGOSITA ARNOLDI new species. Genotype.

Female:—Length, 1·00 mm. Robust for the family.

Orange yellow, the wings hyaline; pedicel and funicle subequal; fore wings with about fifteen lines of discal cilia, the lines more or less irregular; longest marginal cilia of fore wing less than a sixth the wing's greatest width. Hind wings with one long midlongitudinal line of discal cilia and a second half to three quarters complete one at the cephalic margin. Abdomen with about six black cross-stripes. Legs and antennæ concolorous.

Described from one female on a slide in the collections of the Queensland Museum, labelled " Sweeping undergrowth, mostly eucalyptus, April 16, 1913. H. Hacker."

Habitat: Brisbane, Queensland.

Type: No. *Hy 1603,* Queensland Museum, the foregoing specimen.

The species is dedicated to Matthew Arnold.

The characteristic of the genus is really the short marginal ciliation of the fore wing which so far is not known to intergrade; that is to say, species of *Oligosita* heretofore known have never failed to have the ciliation long and here its shortness is correlated with antennal peculiarities. I must, therefore, consider the genus distinct until it is known to the contrary.

Genus CENTROBIELLA Girault.

1. **CENTROBIELLA MAGNA** new species.

Male:—Length, 1·05 mm. Large and robust for the family. Deep golden yellow, the wings hyaline, the sides of thorax and five conspicuous stripes across the abdomen from base to tip, jet black, the first three stripes of the abdomen fused in the dorsal aspect centrally. Marginal and stigmal veins conspicuously blackened, the stigmal knob enlarged and round, somewhat as in the Megastigminæ but more rounded. Genitalia conspicuously exserted. Tibial spur of intermediate legs long, straight and slender, as long as the proximal tarsal joint of these legs which is moderately long. Differs from female *mulierum* in its much larger size, the blackened marginal and stigmal veins, the enlarged stigmal knob, the greater development of the intermediate tibial spur and in bearing five abdominal stripes, the fifth one in *mulierum* being obscure, represented by a spot at extreme apex; from the male of the same species in the same characters and also in having the conspicuously banded abdomen (merely darkened toward tip in male *mulierum*). Funicle joint longer than wide, stout. Cephalic tibial spur very short and straight. Fore wings not very distinctly infumated proximad.

Female:—Not known.

Described from one male captured by sweeping grass and foliage in forest, August 5, 1913.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1604,* Queensland Museum, the above specimen on a slide.

OPHIONEURINI.

Genus LATHROMEROIDES Girault.

Differs from *Tumidiclava* Girault in having the abdomen very long and tubular, the club not much swollen and not terminating in a seta, the thorax

with a median sulcus, the discal ciliation of the fore wing normal, dense. Hind wings with five lines of discal cilia. Two ring-joints. Ovipositor exserted for about a seventh the length of the long abdomen.

Type: The first species following.

1. LATHROMEROIDES LONGICORPUS Girault. Female. Genotype.

Bright golden yellow; a black dot under stigmal vein. Legs pallid yellow, antennæ somewhat dusky.

Habitat: Proserpine, Queensland. Forest.

Type: No. *Hy 1271*, Queensland Museum.

2. LATHROMEROIDES FASCIATIVENTRIS Girault. Female.

Differs from the preceding in having four or five black stripes across the abdomen. Antennæ with two ring-joints. Also the body is stouter, the wings broader and the general coloration somewhat lighter, pale lemon yellow.

Habitat: Nelson (Cairns), Queensland. Forest.

Type: No. *Hy 1605*, Queensland Museum.

There are certainly two ring-joints in *fasciativentris* while only one is recorded for the type species. A careful re-examination of the latter will be necessary to decide how many there are in the genus. The types of the two species should be carefully compared. Later, through the kindness of Dr. R. Hamlyn-Harris, I was enabled to do this; there are two ring-joints in both species.

Genus APHELINOIDEA Girault.

1. APHELINOIDEA HOWARDII Girault.

Ayr, Queensland.

Genus TUMIDICLAVA Girault.

1. TUMIDICLAVA CILIATA Girault.

Proserpine, Queensland, sweeping grass in an open jungle pocket, November.

Genus LATHROMEROIDEA Girault.

I captured a female of the type species by sweeping in the forest at Nelson, June 8, 1912. The antennæ bear two rather large ring-joints, the first of the five club joints shortest.

The Australian members of the family appear to inhabit the forested country, rather than that of the jungle.

AUSTRALIAN HYMENOPTERA CHALCIDOIDEA—II.

SUPPLEMENT.*

By A. A. Girault.

The following additions concerning the Australian fauna have been made.

Family MYMARIDÆ.

OOCTONINI.

Genus OOCTONUS Haliday.

1. OOCTONUS SAINTPIERREI Girault. Female.

Differs from *australiensis* Perkins in bearing a long abdominal petiole. Congeneric with *Cosmocomoidea morrilli* Howard. Black, the wings without pattern; legs deep orange yellow, also scape; first coxæ black. Longest marginal cilia of fore wing a little less than a third of the greatest width. Funicle joints longer than wide, not very unequal, joints 2, 3, and 5 subequal and longest; joint 1 shortest but longer than the pedicel.

Habitat: Kuranda, Queensland. Jungle.

Type: No. *Hy 1562,* Queensland Museum.

Genus CAMPTOPTERA Foerster.

1. CAMPTOPTERA GREGI Girault. Female.

Differs from the single North American and European species in having the first funicle joint abruptly shorter than the second, not long and nearly subequal to the second as in those two species but less than half its length and distinctly shorter than the pedicel. The abdomen is paler.

Habitat: Nelson (Cairns), Queensland. Forest.

Type: No. *Hy 1343,* Queensland Museum.

GONATOCERINI.

Genus COSMOCOMOIDEA Howard.

This genus has 5-jointed tarsi and agrees with *Ooctonus* Haliday but the long marginal vein is not mentioned as a characteristic of the latter genus. Besides, the males of *Cosmocomoidea* have 11-jointed antennæ.

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* *See* Vol. I, Memoirs of the Queensland Museum, pp. 117-175.

1. COSMOCOMOIDEA RENANI Girault. Male and female.

Differs from the type of the genus, the North American *morrilli* Howard, in being black, the flagellum uniformly black, the wings more conspicuously and differently fumated, larger size, in having joints 4 and 5 of the funicle longest and in lacking a distinct abdominal petiole, the abdomen merely tapering at base. The male has 13-jointed antennæ and resembles the female in coloration. A large mesopræscutum is *not* present.

Habitat: Nelson (Cairns), Queensland. Forest.

Type: No. *Hy 1563,* Queensland Museum.

Differs in the female from *Cosmocomoidea* Howard in bearing a subsessile abdomen and in the male by bearing 13-jointed antennæ. The longer marginal vein differentiates it from *Gonatocerus* Nees and the sessile abdomen from *Ooctonus* Haliday and also probably the long marginal vein. The scutum has a median groove.

2. COSMOCOMOIDEA GROTIUSI (new species).*

Female:—Length, 2·00 mm.

Similar to *renani* but the ovipositor is slightly exserted and the fore wings differ in pattern; thus the first band under the marginal vein is distinct, the second band is also more distinct, black and midway between apex of venation and apex of blade; the third is absent, thus the distal part of the blade is clear; the wings are also smaller and less densely ciliate. The scape has a broad yellow band across it, the first three funicle joints are silvery white on one distal corner, the three shortest and not much unequal.

Male:—Not known.

Dedicated to Hugo Grotius.

Described from one female captured July 4, 1913, by sweeping in forest (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1564,* Queensland Museum, the above specimen on a slide.

This species doubtfully belongs here but unfortunately I neglected to examine the thorax before mounting it in balsam. *Gonatocerus saintpierrei, spinozai, bicolor* and *mirissimus* also doubtfully belong here, especially the first and last. A mesopræscutum was thought to be present. All are *Gonatocerus.*

* This and following specimens magnified with ⅔-inch objective, 1-inch optic, Bausch and Lomb.

Genus ALAPTUS Haliday.

Synonym: *Parvulinus* Mercet.

1. ALAPTUS ANIMUS Girault. Female.

Closest to *newtoni* Girault from which it may be distinguished by the longer antennal club which is subequal to the funicle in length and the darker body coloration, the pale funicle contrasting with the dark club.

Habitat: Nelson (Cairns), Queensland. Forest.

Type: No. *Hy 1289,* Queensland Museum.

2. ALAPTUS MACCABEI Girault. Female.

Alaptus immaturus Perkins, *partim*, in Girault, *ante*, 1912.

Like *immaturus* Perkins but the body much darker and the line of ciliation on the disc of the fore wing is much longer, extending from apex proximad to venation. It may be merely a variety of *immaturus.*

Habitat: Nelson and Herberton, Queensland. Forest.

Type: No. *Hy 1290,* Queensland Museum.

Genus AGONATOCERUS Girault.

Differs from *Gonatocerus* Nees in being very small and in bearing 13-jointed antennæ, the funicle 10-jointed. The scutum has a median grooved line. Female. Type, the following species.

1. AGONATOCERUS HUMBOLDTI Girault. Female. Genotype.

Dusky brown, the base of abdomen golden yellow, the wings hyaline; antennæ and legs somewhat darker, the basal half of scape pallid. No discal cilia under venation of fore wing.

Habitat: Nelson (Cairns), Queensland. Forest.

Type: No. *Hy 1565,* Queensland Museum.

Genus GONATOCEROIDES Girault.

Published as a subgenus of *Gonatocerus* Nees, but now considered as a genus. Differs from *Gonatocerus* in bearing 10-jointed antennæ. Type, the following species.

1. GONATOCEROIDES AUSTRALICA Girault. Female. Genotype.

Dusky brown, knees, basal three joints of tarsi, first femora and tibiæ pale yellowish. Wings hyaline. Fore wings broad, bearing about thirty-three lines of fine discal cilia. Fourth funicle joint longest, the third joint decidedly longer than either joints 1 or 2, nearly as long as the pedicel. First femora dusky beneath proximad.

Habitat: Ayr, Queensland. Forest.

Type: No. *Hy 1273,* Queensland Museum.

Genus GONATOCERUS Nees.*

1. GONATOCERUS COMPTEI Girault.

Fresh specimens of this species show a large arrow-shaped fuscous spot in the lateral aspect of the abdomen at distal half. The dark markings are variable.

Proserpine, Queensland, November, 1912, by sweeping grass in forest. Males. Also at Quingilli in September, same conditions.

2. GONATOCERUS SPINOZAI Girault. Male.

Similar to the female but the abdomen transversely striped dorsad with six black stripes, the propodeum purplish black. Funicle joints 2-4 and 9-10 subequal, longest, each about thriee longer than wide, joint 8 being shortest. Antennæ 13-jointed.

Habitat: Nelson (Cairns), Queensland. Forest.

3. GONATOCERUS AUSTRALIENSIS (Perkins). Male and female.

Oœctonus australiensis Perkins, 1905, pp. 191, 193, 194, 195, pl. xiii, fig. 2 (lowest two figs.).

Gonatocerus australiensis (Perkins), 1912, p. 20.

Differs from all the species known to me from Australia, all of the species so far described, in having varicoloured antennæ in the female, joints 5-7 being white; the first funicle joint is longer than the pedicel; black. The thorax of this species should be carefully examined since the species has the facies somewhat of *Cosmocomoidea.*

4. GONATOCERUS AYRENSIS Girault. Female.

Golden yellow, head dusky, tip of abdomen, and a narrow transverse band before it, black. Funicle and club black, all funicle joints long except the first and last, the first two-thirds the length of the slender second joint. Close to *baconi* Girault but the proximal tarsal joints are longer, the thorax is all yellow and the first two pairs of legs are lighter.

Habitat: Ayr, Queensland. Forest.

Type: No. *Hy 1275,* Queensland Museum.

5. GONATOCERUS NOX Girault. Female.

Similar to *cingulatus* Perkins but the whole body uniformly sooty brownish, nearly black, coloured like most species of *Anaphoidea.* Also the fourth funicle joint is distinctly longer than the third.

Habitat: Ayr, Queensland. Forest.

Type: No. *Hy 1276,* Queensland Museum.

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* *Cosmocomoidea renani* and *C. grotiusi* belong here.

6. GONATOCERUS FULGOR Girault. Male.

Like *brunoi* but the fore wings somewhat broader, not so regularly rounded at apex, the discal ciliation noticeably denser (finer and shorter) and there are about thirty-three lines; the funicle joints are shorter, the proximal ones barely twice longer than wide; the legs are darker.

Habitat: Ayr, Queensland. Forest.

Type: No. *Hy 1277,* Queensland Museum.

7. GONATOCERUS BICOLOR Girault.

Black, the abdomen orange reddish; scape and pedicel lemon yellow, also all of legs except the fuscous tibiæ. First funicle joint longer than the pedicel or joint 2 of the funicle, subequal to joint 3. With the facies of *Cosmocomoidea* and thus the thorax should be examined for a mesopræscutum.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1293,* Queensland Museum.

8. GONATOCERUS FASCIATIVENTRIS Girault. Male.

Differs from *goethei* Girault in coloration and in bearing broader fore wings. Yellow, the abdomen with six black stripes across dorsum. Fore wings of the broader type. Funicle joints only about one and a half times longer than wide.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1294,* Queensland Museum.

9. GONATOCERUS BRUNOI LYELLI Girault. Male.

Like the typical forms but the abdomen above at distal third distinctly banded with narrow golden yellow stripes, the wings very dark.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1295,* Queensland Museum.

10. GONATOCERUS DIES Girault. Female.

Jet black. Face, parts of scutum and the knees obscure golden yellow. Wings hyaline, broad. Base of abdomen more or less obscurely yellow. Like *helmholtzii* but the fore wings are noticeably less densely ciliate, the ciliation coarser and the ovipositor is plainly exserted for a length equal to a fourth that of the abdomen.

Habitat: Capeville (Pentland), Queensland. Forest.

Type: No. *Hy 1566,* Queensland Museum.

11. GONATOCERUS SAINTPIERREI Girault. Male.

Very large and with the facies of *Cosmocomoidea*. Jet black. Fore wings with a midlongitudinal, subcylindrical fuscous stripe from near apex proximad a little more than half way to the marginal vein. Fore wings broad.

Habitat: Kuranda, Queensland. Jungle.

Type: No. *Hy 1567,* Queensland Museum.

12. GONATOCERUS LOMONOSOFFI Girault. Female.

Jet black and like *nox* but smaller, the fore wings of the broader type yet not wide, the antennæ with the first three funicle joints short and subequal, the fourth only a little longer while the fifth is plainly twice longer than the third. Discal cilia absent under the marginal vein or nearly.

Habitat: Kuranda, Queensland.

Type: No. *Hy 1568,* Queensland Museum.

13. GONATOCERUS MIRISSIMUS new species.

Female:—Length, 2·25 mm. Very large for the family. Black, the abdomen red and thus coloured like *bicolor* from which it differs in bearing a conspicuous black, uniform, longitudinal stripe down the middle of the wing from apex a little more than half way to apex of the venation. Thus also allied with *saintpierrei* Girault but the stripe on the fore wing of the latter very much fainter and narrower, its outlines obscure. Structurally very similar to *bicolor.* Like *saintpierrei* in wings and legs (structure). Legs rich brown, the cephalic coxæ black.

Male:—Not known.

From one female captured by sweeping in jungle, June 14, 1913 (A. P. Dodd). Several days later, June 16, another female was captured in the same place; in this specimen the dorsum of the abdomen and its tip were black.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1569,* Queensland Museum, the above specimen on a slide with the type of *Gonatocerus saintpierrei* Girault.

14. GONATOCERUS TRICOLOR new species.

Male:—Length, about 1·50 mm. Large for the family. Black, the abdomen and scape orange yellow and thus like *bicolor* but the fore wings are distinctly broader, equal to those of *saintpierrei*; besides the orange abdomen this species differs from *saintpierrei* in having the fumation of the wings spread all over the blade distad of the venation excepting the caudal and cephalic margins which are clear two thirds the way to apex from the distal end of the marginal vein. Parapsidal furrows complete; *mesoprœscutum apparently absent*; scutellum long as the scutum, flattened. Joints of antennal funicle at least twice longer than wide.

Described from one male specimen captured by sweeping along a damp creek, grass, in forest, July 8, 1913 (A. P. Dodd). Respectfully dedicated to Hugo Grotius.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1570,* Queensland Museum, a fore wing on a slide with the type of *Gonatocerus bicolor.*

The single specimen of this species, unfortunately, was lost, only a wing being saved.

15. GONATOCERUS POINCAREI new species.

Female:—Length, 2·00 mm.

Like *mirissimus* Girault but scape, pedicel and legs (excepting front coxæ), yellow, the abdomen wholly black, the distinct, wide midlongitudinal black stripe of distal fore wing shorter, that is not proceeding to apex but fading distinctly some distance before; also in the middle of the blade farther proximad there is a more or less distinct fuscous spot only narrowly connected with the black stripe (in *mirissimus* broadly connected and not forming a more or less distinct spot); also the funicle joints are distinctly longer, the distal joint longer than wide, joints 2 and 3 longest and distinctly over twice longer than wide (in *mirissimus* the distal joint is quadrate while joints 2 and 3 are distinctly not twice longer than wide). The yellow parts change to orange in balsam.

Male:—Not known.

Described from one female captured by sweeping in jungle, July 13, 1913. Respectfully dedicated to Jules Henri Poincaré.

Habitat: Harvey's Creek (Cairns District), Queensland.

Type: No. *Hy 1571,* Queensland Museum, the above specimen on a slide with the type of *Gonatocerus lomonosoffi* Girault.

16. GONATOCERUS MERCES new species.

Female:—Length, 0·80 mm.

Golden yellow marked with jet black as follows: A flat, hemispherical marking at caudal margin of pronotum across middle, all of scutum except lateral and caudal margins, a large diamond-shaped area on the parapside (nearly joining the next), a smaller triangular area in the vicinity of the axillæ (laterad of the cephalic scutellum), the propodeum, a line from one lateral ocellus to the other, three areas on the occiput, cephalic aspect of the head and distal half of abdomen above and hind tibiæ. Legs pale yellow. A pattern of black spots on cephalic vertex. Distal two tarsal joints black. Antennæ missing. Fore wings hyaline, moderate in width, with about 17 lines of cilia. Marginal cilia about a fourth the greatest wing width.

Described from one female captured by sweeping in jungle pocket, July 24, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1572,* Queensland Museum, the above female on a slide with the type of *Gonatocerus metschnikoffi.*

17. GONATOCERUS MAZZININI new species.

Female:—Length, 1.50 mm.

Black, densely reticulated, the wings hyaline; mesopræscutum absent; parapsidal furrows and thorax normal; belongs to the *spinozai* group and is characterised by the coloration and the antennal structure, the funicle joints being more or less subquadrate but the first like a large ring-joint, distinctly smaller than any of the others, joints 4 and 5 longest, each a little longer than wide, the others subquadrate and more or less subequal to the pedicel; scape compressed, dilated ventrad, golden yellow along the middle of each side. Wings like those of *bicolor.* Legs pale lemon yellow except the more or less coloured coxæ and the embrowned second and third tibiæ; abdomen above at base with slight yellowish, with a distinct but short petiole as in *saintpierrei*; ovipositor not exserted. Club over half the length of the funicle.

Male:—Not known.

Described from one female captured December 24, 1911, by sweeping floor of forest, top of coast range of mountains opposite Double Island (about 1,000 feet).

Habitat: Cairns (Double Island, mainland), Queensland.

Type: No. *Hy 1573,* Queensland Museum, the above specimen on a slide.

Respectfully dedicated to Giuseppe Mazzini for his essays, more especially for his " The Duties of Man."

18. GONATOCERUS CARLYLEI new species.

Female:—Length, 1.25 mm.

About the same as *dies* but larger, the median line of scutum and the lateral margins of same narrowly and lateral margins of scutellum, golden yellow; otherwise as in *dies* except the hind femur is pallid, the hind tibiæ with a pallid band around them just proximad of middle. Ovipositor plainly exserted for a length equal to a third that of the abdomen (or somewhat less). Proximal third of abdomen plainly yellow.

Male:—Not known.

Described from one female captured by sweeping in the forest, August 23, 1913 (A. P. Dodd). Dedicated to Thomas Carlyle.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1574,* Queensland Museum, the above specimen on a slide.

ANAPHINI.

Genus ANAGRUS Haliday.

1. ANAGRUS ARMATUS AUSTRALIENSIS Girault.

Proserpine, Queensland, November 4, 1912, a female from a window.

Genus STETHYNIUM Enock.

1. STETHYNIUM LATIPENNE Girault. Male.

Robust for the genus. Differs from all the Australian species in bearing very broad wings, which bear at their widest part about thirty lines of fine discal cilia. From *peregrinium* it differs in general coloration and in bearing a thoracic median sulcus. Lemon yellowish marked with deep black. Hind wings with about six lines of discal cilia at apex, the longest marginal cilia of fore wing somewhat over half the greatest width of those wings.

Habitat: Proserpine, Queensland.

Type: No. *Hy 1274,* Queensland Museum.

Genus PARANAPHOIDEA Girault.

Like *Anaphoidea* Girault but the ovipositor plainly exserted for half the length of the abdomen. Hind wings broad, bearing about seven lines of discal ciliation. Mesopostscutellum as long as the scutum. Venation as in *Stethynium.* Cephalic tibial spur not forming a strigil. Type, the following species.

1. PARANAPHOIDEA EGREGIA Girault. Female. Genotype.

Black, with a golden yellow pattern; mesopostscutellum golden yellow excepting a prominent, elliptical black marking on each side of the median line and an oblique dash laterad; scutum at caudal margin golden yellow and mesad with a U-shaped golden yellow marking; face yellow; a slender golden yellow line on the vertex runs across the cephalic ocellus from eye to eye, laterad widening caudad and cephalad, leaving in the centre of the vertex two subrectangular areas, before and behind the cephalic ocellus; margin of axillæ yellow and lateral portions of each parapside, irregularly. Distal club joint much longer than proximal.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1291,* Queensland Museum.

2. PARANAPHOIDEA PONDEROSA new species.

Female:—Length, 1·30 mm., excluding the ovipositor which is exserted for half the length of the abdomen or more.

At once distinguished from the type species in being twice larger, in having the cephalic tibial spur forming a strigil, the first funicle joint distinctly longer

than the pedicel and the different coloration, only the laterocaudal angle of pronotum, the lateral and caudal margins of the scutum and the median line of the latter being bright lemon yellow. Hind femora swollen, the front ones less so, the legs pale yellow. Funicle joints all cylindrical, 2-4 longest but not much longer than any of the others.

Male:—Not known.

Described from one female captured by sweeping in forest, August 12, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1575*, Queensland Museum, the above specimen on a slide.

Genus POLYNEMOIDEA Girault.

Habitus of *Polynema*; venation and wings of *Cosmocomoidea* but the marginal fringes are long; antennæ of *Polynema* but the club is indistinctly 3-jointed; tarsi 4-jointed; abdomen subsessile, no distinct petiole, no phragma, the ovipositor very long, slender, exserted for a length equal to more than that of the abdomen. Parapsidal furrows complete; scutellum rectangular, mesopostscutellum larger than it. Propodeum still longer. Antennæ 11-jointed, the scape serrate beneath. Strigils present. Type, the following species.

1. POLYNEMOIDEA VARICORNIS Girault. Female. Genotype.

Black, the first four funicle joints of antennæ white, the legs yellowish brown. A stain along the anterior margin of fore wing around the apex and broadly across from the marginal and stigmal veins. First funicle joint much smaller than the pedicel, the next two joints very long, joint 2 a little shorter than 3 and subequal to the club in length. Sculpture fine.

Habitat: Hobart, Tasmania.

Type: No. *I. 1228*, South Australian Museum, Adelaide.

2. POLYNEMOIDEA LINCOLNI new species.

Female:—Length, 1·15 mm. Ovipositor not exserted.

Pale brownish yellow, the head, cephalic third of thorax (along pro- and mesonotum) and distal eight antennal segments, black. Fore wings dusky out as far as the apex of the venation and distad more or less obscurely along each margin. Abdomen dusky yellowish. Second funicle joint longest, more or less equal to the pedicel. Mesopostscutellum with a sclerite back of it much like the postscutellum of a normal scutellum. Otherwise about as in *varicornis* but the marginal fringes of the fore wing are much shorter. Mandibles bidentate.

Male:—Not known.

Described from one female specimen captured by sweeping in jungle, July 10, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1576*, Queensland Museum, the above specimen on a slide with the type of *Anaphes saintpierrei*.

Dedicated to the life of Abraham Lincoln.

Genus ANAPHES Haliday.

1. ANAPHES SAINTPIERREI new species.

Female:—Length, 0·60 mm.

Jet black, the antennæ and legs sooty, the wings greyish black throughout. Fore wings very narrow, curved and acute at apex, bearing only about six lines of discal cilia, the very long marginal cilia over twice the greatest wing width. First two pairs of legs suffused with yellowish. Parapsidal furrows complete, the scutellum very large, occupying over half of the thorax. Sculpture fine. Hind wings without midlongitudinal cilia. Strigils present. Funicle joints 3-6 subequal and longest, each nearly twice longer than 2, joint 1 very short. A clear spot in middle of fore wing a little distad of venation. Mandibles acutely bidentate.

Like the North American *sinipennis* Girault with which I have compared it but the fore wings still distinctly narrower and in *sinipennis* the second funicle joint is a little the longest. Characterised by the fore wings.

Male:—Unknown.

Described from a single female captured from the panes of a window in a hotel, July 13, 1913.

Habitat: Harvey's Creek (Cairns), Queensland.

Type: No. *Hy 1577*, Queensland Museum, the above specimen on a slide with the type female of *Polynemoidea lincolni*.

Respectfully dedicated to L'Abbé Saintpierre.

2. ANAPHES SPINOZAI new species.

Male:—Length, 1·00 mm. Slender.

Black, the abdomen yellowish at proximal third, the legs, scape and pedicel pale yellow, the funicle and club greyish black. At once characterised by the ciliation of the fore wing which is nearly all gathered on the cephalo-distal corner of the blade where it is rather densely arranged in about from seven to eight lines; on the opposite side near the caudal margin is a straggling line; elsewhere the blade is practically naked excepting at extreme apex, since the cephalo-distal patch of ciliation extends a short way around the distal margin; fore wing uniformly slightly infumated (cloudy greyish) but distinctly sooty along the

distal or apical margin. Longest marginal cilia of fore wing not quite as long as the greatest width of the blade. Joints of funicle about thrice longer than wide, joint 1 paler; 12 antennal joints but one other certainly missing in the specimen (one antenna half missing, the other with 12 joints present and at least one other missing). Genitalia exserted. Strigil present.

Female:—Not known.

Described from one male specimen captured by sweeping miscellaneous vegetation in the town and adjoining country, February 26, 1913.

Habitat: Halifax, Queensland.

Type: No. *Hy 1578,* Queensland Museum, the above specimen on a slide.

MYMARINI.

Genus MYMAR Haliday.

1. MYMAR TYNDALLI Girault.

A female at Proserpine, Queensland, November, 1912, sweeping near a small pond in semi-cultivated field.

Male:—The same as the female. Antennæ slender, the funicle joints all elongate and subequal but the first joint and the club slightly shorter, each of the funicle joints about two and three quarter times the length of the pedicel.

Described from one specimen captured by sweeping in forest August 7, 1913 (A. P. Dodd), at Nelson, Queensland.

Genus POLYNEMA Haliday.

1. POLYNEMA DEVRIESI Girault. Male.

Similar to *draperi* and *romanesi* but differing from both in bearing much coarser discal cilia on the fore wing and in being ferrugineous, the distal third of the abdomen black.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1296,* Queensland Museum.

2. POLYNEMA MENDELI Girault. Male, female.

Like *devriesi* but the discal ciliation of the fore wing finer, the marginal cilia shorter, not quite as long as the greatest width of the blade. Ferrugineous, the abdomen black. First funicle joint much shorter than the second. The female has a very long, exserted ovipositor and two grooves on the scutellum.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1297,* Queensland Museum. Male.

3. POLYNEMA NORDAUI Girault. Female.

Black; first three antennal joints, abdominal petiole, legs except distal half of hind femur and distal tarsal joints, orange yellow. Like *longipes* but the antennæ different, joints 2 and 3 of funicle being long and subequal. Nearly like *draperi* in wings but the legs are orange, brighter. Possibly the female of *draperi* but most probably quite distinct.

Habitat: Nelson and Meerawa (Cairns), Queensland.

Type: No. *Hy 1298,* Queensland Museum.

A female of this species was captured by sweeping in jungle at Meerawa, Queensland, July 26, 1913 and another in a similar habitat at Nelson, July 30 following.

4. POLYNEMA AUSTRALIENSE Girault. Female.

Like *spenceri* but the funicle joints are longer; joint 1 of funicle is distinctly shorter than 3 while joint 2 is six or more times longer than wide; joint 4 is distinctly longer than either 5 or 6.

Habitat: Capeville (Pentland), Queensland.

Type: No. *Hy 1579,* Queensland Museum.

5. POLYNEMA PAX Girault. Female.

Like *spenceri* but the second joint of funicle plainly over twice the length of the pedicel and the discal ciliation of the fore wing does not disappear proximad. Legs and petiole dusky brown; joints 2-4 of funicle dusky yellow. A female of this species was captured at Nelson, June 9, 1913, walking over the foliage of *Tristania* (A. P. Dodd).

Habitat: Kuranda (type) and Nelson, Queensland.

Type: No. *Hy 1580,* Queensland Museum.

6. POLYNEMA POINCAREI Girault. Female.

Dark brown, the abdomen and scape black, also the two distal joints of antenna. Fore wings with two jet-black bands across them, the distal one covering the distal fifth of the wing. First funicle joint longer than the scape, the second joint extraordinarily lengthened, subequal to the third which is about twice the length of the first.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1581,* Queensland Museum.

On July 30, Mr. A. P. Dodd caught a third female of this extraordinary species by sweeping in a jungle pocket near Nelson.

7. POLYNEMA ROUSSEAUI Girault. Female.

Like *sieboldi* Girault but the third funicle joint is subequal to the second and the hind femur is black at distal half, the second tibia with a dusky ring just before tip. Also the large spot on the fore wing is blacker and somewhat farther distad. The second funicle joint is black, the distal three joints of the funicle decidedly shorter, each shorter than joint 1. Also, the fore wings bear a disto-cephalic marginal spot.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1582*, Queensland Museum.

8. POLYNEMA FRANKLINI Girault. Female.

Like *sieboldi* but the spot on the fore wing darker, the coxæ and petiole orange yellow like rest of the legs; also the distal three funicle joints are as in *rousseaui* from which this species differs in the coloration of the legs.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1583*, Queensland Museum.

9. POLYNEMA ZOLAI Girault. Male.

Jet black, the wings hyaline. Characterised by the broad fore wings, the longest marginal fringes of which are only about a sixth the greatest wing width. There are only about twelve lines of diseal cilia, these latter sparse and practically absent over the proximal half of the blade which is about two and a quarter times longer than broad. A very minute ring-joint is present.

Habitat: Kuranda, Queensland.

Type: No. *Hy 1584*, Queensland Museum.

10. POLYNEMA SPECIOSISSIMUM Girault. Female.

Black, the head, pronotum and mesonotum reddish brown; petiole, coxæ, trochanters, first femora and basal half of all tibiæ, silvery white; tarsi, scape and pedicel reddish brown, joints 4 and 5 of funicle white. Fore wings marked somewhat as in *franklini*, but the cross band is very intense jet black and much longer. Joint 1 of funicle two-thirds the length of the second, which is subequal to the third, all three elongate.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1585*, Queensland Museum.

11. POLYNEMA SAPPHO new species.

Female:—Length, 1·00 mm.

Black, the pedicel, first funicle joint (more or less), tibiæ (except distal two thirds of hind tibiæ), petiole, tarsi except distal joint, coxæ except cephalic ones and trochanters yellowish. Differing from nearly all Australian species

of the genus so far known by bearing, besides a transverse blackish stripe across somewhat distad of the middle (much over its own length from the venation, the stripe subquadrate and faded along the cephalic margin, brown not jet black), on the fore wing an ovate dusky spot distad in the cephalo-distal corner of the blade. Discal cilia rather sparse, absent under the venation and for some distance distad from it (out as far as the cross band); longest marginal cilia equal to two thirds the greatest wing width. First funicle joint a little longer than the pedicel, a little over half the length of the second which is longest, the third a fourth shorter than the second, the sixth shortest, ovate, the fourth a little shorter than the first, a little longer than the fifth. Scape simple.

Male:—Not known.

Described from one female captured by sweeping jungle growths along a forest streamlet, June 18, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1586,* Queensland Museum, the above specimen on a slide with the type of *Polynema speciosissimum* Girault.

This species is closely allied with *rousseaui* Girault which also has the distocephalic spot on the fore wing; however, in that species the second and third funicle joints are of equal length, the fore wings wider (about sixteen lines of cilia, only about eleven here) and the first funicle joint is longer in *rousseaui.* Also, in the latter, the scape, pedicel and first funicle joint are all uniform in color.

12. POLYNEMA NOTABILISSIMUM new species.

Female:—Length, 1·50 mm. Large and striking.

Like *poincarei,* that is the wings with two jet-black bands, but differing as follows: Firstly, it is jet black, only the pedicel and first two funicle joints of the antenna and the legs (except coxæ and distal tarsal joints) are orange yellow. Secondly, the appendages are less slender; in the antennæ the first three funicle joints are not so long and the third is longest, distinctly longer than the second, which, however, is long; the club is normal, that is large and ovate, the distal funicle joint not apparently a part of it and much narrower than it; also the distal three funicle joints are much shorter, the distal joint shortest, subequal to the pedicel. The extraordinarily lengthened proximal tarsal joints in *poincarei* are replaced here by still long ones but not half as long as those of the species named. In the fore wings the pattern differs in that the clear band between the two black bands is not subequal to the length of the distal band as in *poincarei* but narrow and only about a third the length of that band and distinctly less than the length of the proximal band (distinctly longer than it is in *poincarei*). Abdominal petiole pale yellowish. The species less robust than *poincarei,* the wings shorter and not so broad. Third and fourth funicle joints only dusky, the other joints distad black.

Male:—Not known.

Described from one female captured by sweeping in jungle, June 10, 1913 (A. P. Dodd).

Habitat: Little Mulgrave River near Nelson (Cairns), Queensland.

Type: No. *Hy 1587*, Queensland Museum, the above specimen on a slide with *Polynema poincarei* Girault.

13. POLYNEMA GROTIUSI new species.

Female:—Length, 2·90 mm., exclusive of ovipositor which is exserted for a length equal to nearly half that of the abdomen.

Polished black, the line of foveæ near apex of scutellum present; pronotum as long as the scutum which bears complete parapsidal furrows. Over distal half of petiole silvery white. Scape, pedicel, joints 1, 4, and 5 of funicle, much of first femora, knees and the tarsi yellowish or reddish brown. Club about twice the length of the distal joint of the funicle, the joints of the latter elongate, 2 and 3 subequal, longest, each somewhat over twice the length of joint 6; joint 1 a little longer than joint 4 which is slightly shorter than the club, a third shorter than 3. Fore wings very broad, with about thirty-four lines of discal cilia, their marginal cilia short, the longest only about an eighth of the greatest wing width. Fore wings darkened distad of the venation.

Male:—Not known.

Described from one female captured by sweeping the foliage along a jungle path, July 13, 1913.

Habitat: Harvey's Creek, Cairns District, Queensland.

Type: No. *Hy 1588*, Queensland Museum, the above specimen on a slide.

14. POLYNEMA DARWINI new species.

Female:—Length, 1·20 mm.

At once distinguished by the fore wings which are hyaline but with a distinct disto-cephalic spot; this spot is larger and more distinct than the one in *rousseaui* or *sappho* and round. Black, polished, the foveate line across the long scutellum obscure, made of fine, scattered punctures. Legs black, knees, front tibiæ and all tarsi whitish. Scape, pedicel (except above) and first funicle joint pallid, the following one or two joints dusky pallid, the club and last two funicle joints black; funicle 4 distinctly longer than 5 or 6, slightly shorter than 1; joints 2 and 3 of funicle nearly equal, long, 2 a little the longer, about a third longer than 1 which exceeds the length of the pedicel. Fore wings with about from 12-14 lines of discal cilia, their longest marginal cilia somewhat over two thirds the greatest wing width. Scape simple.

Male:—Not known.

Described from a single female captured by sweeping forest growths, November 3, 1912.

Habitat: Proserpine, Queensland.

Type: No. *Hy 1589,* Queensland Museum, the above specimen on a slide with the type female of *P. grotiusi* Girault.

Dedicated to Charles Darwin.

15. POLYNEMA HAECKELI new species.

Male:—Length, 1·50 mm.

Like *franklini* and *sieboldi* but differing in that the stripe across the fore wing is deeper than in the former and the hind femora and tibiæ black, the intermediate tibiæ dusky. Legs otherwise orange yellow. Scape and pedicel dusky pallid, the rest of the antenna black. Funicle joints over thrice the length of the pedicel, thus longer than with the specimen described as the male of *sieboldi* (which has the hind femur blackish at tip).

Female:—Not known.

Described from one male captured by sweeping jungle in a gorge, July 26, 1913.

Dedicated to Ernst Haeckel.

Habitat: Meerawa (Cairns), Queensland.

Type: No. *Hy 1590,* Queensland Museum, the above specimen on a slide with the type of *lodgei,* described next.

16. POLYNEMA LODGEI new species.

Female:—Length, 2·00 mm.

Black, the legs brown, black at tip of hind tibiæ; pedicel and joints 1, 4 and 5 of funicle yellowish, the scape darker, joints 2 and 3 of funicle brownish black, joint 6 and the club jet black. Of the build of *grotiusi* but at once distinguished from all the species of the genus in bearing fore wings like those of *Gonatocerus mirissimus* Girault but the broad, longitudinal black stripe does not extend half way to the venation. Discal ciliation arranged in about from 28-30 lines, disappearing some distance out from the venation, the longest marginal cilia short, only about a fifth or sixth the greatest wing width. Second funicle joint longest, a fourth or more longer (that is distinctly longer) than the third, the first distinctly longer than any of the three distal funicle joints, longer than the pedicel, a little over half the length of the scond joint.

Male:—Not known.

Described from one female captured by sweeping in jungle bordering a stream in forest country gradually verging to jungle, July 26, 1913.

Habitat: Meerawa (Cairns), Queensland.

Type: No. *Hy 1591,* Queensland Museum, the above specimen on a slide with the type of *haeckeli.*

This truly remarkable species, a striking example of the development of a similar wing pattern in unrelated genera, is respectfully dedicated to Sir Oliver W. Lodge for his part in the development of a difficult part of human psychology, namely, that relating to telepathy and prevision.

17. POLYNEMA FRATER new species.

Male:—Length, 0·60 mm.

Exactly like *draperi* Girault but the fore wings like those of *nordaui*; also on the scutellum there is a pair of setigerous spots at proximal third or so which are closer together than are the straight parapsidal furrows at apex; in *draperi,* a similar pair is as far apart as the curved furrows are at apex (caudal margin of scutum); in *nordaui,* the hind femur is black distad but more than this *nordaui* seems to differ in that there is a pair of minute setigerous dots at cephalic margin of scutellum at the meson which nearly touch each other. (Antennæ missing.)

Described from one male taken by sweeping grass and sedges in a boggy meadow inhabited by *Pandanus,* July 17, 1912.

Female:—The same. Second funicle joint much the longest, a third longer than joint 3, while 4 is very short, subequal to 1, distinctly shorter than 5 or 6 which are distinctly shorter than 3 and the pedicel.

From one specimen captured in the forest at Nelson, August 12, 1913 (A. P. Dodd).

Habitat: Ingham and Nelson, Queensland.

Type: No. *Hy 1592,* Queensland Museum, the above specimen on a slide with a female of *P. pax* Girault; a female with the type of *zolai.*

18. POLYNEMA MENDELEEFI new species.

Male:—Length, 1·40 mm.

Exactly similar to *zolai* but somewhat more robust and differing in the structure of the fore wings. Thus in this species these organs are more densely ciliate bearing about 20-22 lines of discal cilia, the latter are distinct (indistinct in *zolai*) and normal and extend plainly farther proximad, in fact three fourths the way from apex to venation (only about half way in *zolai*); also the marginal cilia of the fore wing are longer, somewhat more (the longest) than a fifth the greatest wing width. Cephalic tibiæ yellow.

Female:—Not known.

Described from a single male specimen captured by sweeping foliage in a jungle pocket, July 30, 1913 (A. P. Dodd).

Respectfully dedicated to the Russian chemist who propounded the periodic law in chemistry.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1593*, Queensland Museum, the above specimen on a slide with two other species of the same genus.

19. POLYNEMA ZANGWILLI new species.

Male:—Length, 1·30 mm.

Like *zolai* but the scape and pedicel yellowish, the legs orange yellow, except hind legs which are brownish; also the fore wings bear longer marginal cilia, the longest of which are plainly half the greatest width of the blade while the latter bears at least twenty lines of discal cilia, the latter tolerably dense and uniform. The line of foveæ across scutellum absent.

Female:—Not known.

Described from one male captured by sweeping in forest, December 2, 1912.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1594*, Queensland Museum, the above specimen on a slide.

DIAGNOSTIC ARRANGEMENT OF THE AUSTRALIAN SPECIES OF *POLYNEMA* HALIDAY.

MALES AND FEMALES.

I. Fore wings hyaline but more or less patterned, either with an extraordinarily conspicuous black or brown cross stripe, or two such stripes, or else with a dusky cross stripe, or a cross stripe and a spot or simply a disto-cephalic spot; or else there is a broad black longitudinal stripe from the apex.

1. Fore wings extraordinarily striped with broad fuscous or jet black; large, appendages elongate.

Fore wing with only one conspicuous broad black stripe across it; antennæ ringed with white.

Black; head, pro- and mesonotum reddish brown; petiole, coxæ, trochanters, front femora, proximal half of all tibiæ, silvery white; tarsi, scape and pedicel reddish brown; joints 4 and 5 of funicle white. Joint 1 of funicle two thirds the length of joint 2, which is subequal to 3, all three elongate *speciosissimum* Girault.

Fore wing with two conspicuous broad black stripes across it; antennæ not ringed with white.

Reddish brown, the scape, two distal antennal joints and abdomen black; joint 1 of funicle longer than the scape, joint 2 extraordinarily lengthened, twice the length of 1, subequal to 3. Distal funicle joint as wide as the club and two thirds its length; space between wing stripes distinctly longer than the proximal stripe .. .. *poincarei* Girault

Black; pedicel and first two funicle joints and the legs orange yellow; joint 3 of funicle longer than joint 2; distal funicle joint not as wide as the club, not apparently a part of it; space between wing stripes narrow, distinctly shorter than the proximal stripe .. .. *notabilissimum* Girault

2. Fore wings hyaline but with an inconspicuous dusky stripe or a stripe and a spot; usual in size, the appendages more normal.

Fore wings with but a single large dusky spot or stripe, extending across the wing or nearly, somewhat distad of the venation. Species black, the legs mostly yellowish.

Legs all yellow.

Distal three funicle joints as long or longer than joint 1; dusky stripe of fore wing less conspicuous; petiole and coxæ pallid .. .. *sieboldi* Girault*

Distal three funicle joints all somewhat shorter than joint 1 of funicle; stripe of fore wing darker; coxæ and petiole orange yellow .. .. *franklini* Girault

Hind femora and tibiæ black.

Dusky stripe of fore wing still darker (male).. .. .. *haeckeli* Girault

Fore wings the same but the stripe darker and there is a disto-cephalic marginal spot. Species black, the legs yellow or blackish.

Legs orange yellow, the hind femora and tibiæ black (the latter along distal half); funicle joints 2 and 3 subequal; fore wings with about 16 lines of discal cilia .. .. .. *rousseaui* Girault

Legs marked with dusky blackish excepting front tibiæ and all tarsi; funicle joint 3 a fourth shorter than 2; fore wings with only about 11 lines of discal cilia .. .. .. *sappho* Girault

3. Fore wings hyaline but there is a distinct disto-cephalic fuscous spot. Legs somewhat as in *sappho*; joints 1 and 4 subequal or nearly, 5 and 6 distinctly shorter; joints 2 and 3 subequal .. *darwini* Girault

4. Fore wing with a conspicuous broad black longitudinal stripe from apex along distal third.

Black, the legs brown, the antennæ more or less varicolored, the second funicle joint distinctly longer than the third, the first distinctly longer than 4, 5 or 6, the latter not as wide as the club and much shorter than it; marginal fringes short .. *lodgei* Girault

II. Fore wings without a pattern, at most irregularly, uniformly or obscurely dusky, no distinct stripe or spot upon them, usually hyaline.

* The type male of this species has the first joint of the hind tarsus distinctly shorter and the hind femur black at tip (as regards the female type).

1. Body wholly black (excluding appendages).

Fore wings narrower, their longest marginal cilia plainly as long as their greatest width or at least over half their greatest width.

Fore wings with only about 11-12 lines of discal cilia; marginal cilia as long as the greatest width of the wing.

Legs uniformly pale yellow; parapsidal furrows curved; cephalic pair of setigerous spots on scutellum as far apart as the furrows at apex .. .. *draperi* Girault

The same, but wings less uniformly ciliate and as in *nordaui;* cephalic pair of setigerous spots of scutellum closer together than the parapsidal furrows at apex .. .. *frater* Girault

Legs orange yellow, the distal half of hind femur black .. *nordaui* Girault

Fore wings with about sixteen lines of discal cilia; marginal cilia from a half to three fourths the greatest width of fore wing.

Legs orange yellow and the scape and pedicel. Fore wings moderately slender (male) .. .. *romanesi* Girault

Coxæ and femora concolorous, rest of legs pallid yellow except dusky on the tibiæ; ciliation of fore wing disappearing proximad; distal three joints of funicle subequal, joint 2 only about four times longer than wide. Fore wings moderately broad .. .. *spenceri* Girault

The same but joint 4 of funicle distinctly longer than joints 5 or 6; joint 2 about six times longer than wide .. .. *australiense* Girault

All legs, except tarsi, dusky brown; ciliation of fore wing not disappearing proximad; joints 2-4 of funicle dusky yellowish. Fore wings moderately broad .. .. .. *pax* Girault

Fore wings with about twenty lines of discal cilia, broad, the marginal cilia not more than half the greatest width. Scape not asperate.

Hind legs brownish, others orange yellow; foveate line across scutellum absent; like *zolai* in habitus (male) .. .. *zangwilli* Girault

Fore wings with about twenty-four lines of very dense and fine discal cilia; scape asperate beneath, sculptured.

Legs intense orange yellow; first funicle joint in female elongate *reduvioli* Perkins

Fore wings broader, broad or very broad, their longest marginal cilia short, not exceeding a fifth of the greatest wing width.

Fore wings broad, their marginal cilia a fifth or sixth of the greatest width.

Fore wings with only about twelve lines of discal cilia which are absent half way out from venation and scattered and indistinct distad; legs black except tarsi, knees and first tibiæ (male) .. .. *zolai* Girault

Fore wings with about 20-22 lines of discal cilia which are absent only a fourth the way to apex from venation, distinct and normal (male) .. .. *mendeleefi* Girault

Fore wings very large and broad, their longest marginal cilia only an eighth of the greatest width.

Fore wings with about 34 lines of discal cilia which are dense; legs black, tarsi brown; antennæ varicoloured, the funicle joints elongate; wings uniformly sooty distad of venation. Species enormous, the largest member of the family .. .. *grotiusi* Girault

The species *grotiusi* is obviously related to the first group of species.

2. Body wholly ferrugineous or yellow or partly one or the other (appendages excluded). Fore wings slender.

Thorax golden yellow, the head and abdomen black. Marginal cilia a little shorter than the greatest width of the blade.

Second funicle joint in male nearly twice the length of the first; in female, ovipositor much exserted, as long as the abdomen .. .. *mendeli* Girault

Whole body ferrugineous to golden yellow; marginal cilia somewhat longer than the greatest width of the blade.

First funicle joint in male only slightly shorter than the second, both long, as are also the next three or four joints; female not known .. .. *devriesi* Girault

Genus EUSTOCHUS Foerster.

1. EUSTOCHUS DUBIUS new species.

Male:—Length, 1·20 mm.

Jet black, the legs brown, the coxæ and antennæ concolorous (except hind coxæ). Fore wings sooty, the fumation deepened under the marginal vein in the form of a rather broad fuscous stripe; discal ciliation absent under venation and for some distance distad, thus giving the appearance of a rather broad whitish stripe across the fore wing just distad of venation, since the hairless area distad of the brownish stripe is lighter than the ciliated area beyond; the same effect also proximad of the brownish stripe. Blade of hind wing uniformly clouded. Discal cilia of fore wing rather dense, the fore wing shaped as in species of *Gonatocerus* of the graceful type.

With the following remarkable structural characters:—Parapsidal furrows complete; scutellum larger than the scutum, divided across the middle by a distinct suture, the postscutellum deeply divided from scutellum at apex but continuing its outlines and appearing as if the scutellum bore a deep transverse suture before apex; metathorax long; second abdominal segment occupying half of the surface, segment 3 only a third shorter than it, the abdomen ovate, its petiole very short, wider than long and guarded by a spine-like prolongation on each side from the second segment of the abdomen; thorax rough, propodeum

rugose; axillæ normal, not advanced, widely separated; venation much as in *Signiphora*; hind wing petiolate, the blade long, somewhat curved and very broad for a mymarid, at apex obtusely rounded and resembling the blade of an ordinary table knife; antennæ filiform, 13-jointed, the pedicel shorter than any of the following joints which are about twice longer than it; marginal fringes of fore wing short, shorter than those of the hind wing which are distinctly shorter than the greatest width of the blade of those wings; tarsi 4-jointed; mandibles delicate, slender, distinctly bidentate, the outer tooth long. Scutellum longitudinally striate. Hind wings with about eight lines of discal cilia; a short row of about seven slender setæ under end of venation. Strigil strong. Several very long setæ from the venation.

Female:—Not known.

Described from two specimens captured by sweeping in forest, July 9, 1913 (A. P. Dodd) and by miscellaneous sweeping at Kuranda (F. P. Dodd) in June, 1913. The generic position of this species is of course not certain. It should be compared with *Anaphes* and allies.

Habitat: Nelson and Kuranda (Cairns), Queensland.

Types: No. *Hy 1595*, Queensland Museum, the above specimen on a slide.

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AUSTRALIAN HYMENOPTERA CHALCIDOIDEA—III.

SUPPLEMENT.*

By A. A. Girault.

The following additions to the Elasmidæ have been made during the past year.

Genus ELASMUS Westwood.

1. ELASMUS FLAVIPOSTSCUTELLUM Girault.

One pair, Proserpine, Queensland, November, 1912, sweeping grass in forest.

2. ELASMUS PROSERPINENSIS Girault. Female.

Like *flavipostscutellum* but the abdomen wholly shining black and the legs distinctly more coloured; also the proximal funicle joint is distinctly longer than the pedicel. Mandibles with seven teeth.

Habitat: Proserpine, Queensland. Forest.

Type: No. *Hy 1278*, Queensland Museum.

3. ELASMUS CYANEILLA Girault. Male.

Like *cyaneus* but the postscutellum has a transverse yellowish stripe across it, the cephalic femora as dark as the others. Fourth funicle joint about twice the length of the club. Mandibles 5-dentate.

Habitat: Proserpine, Queensland. Forest.

Type: No. *Hy 1279*, Queensland Museum.

4. ELASMUS MINNEHAHA Girault. Male.

Like *impudens* but differing in the coloration of the legs and abdomen, the band of the latter much broader. Caudal femur black at *distal* half.

Habitat: Proserpine, Queensland. Forest.

Type: No. *Hy 1280*, Queensland Museum.

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* *See* Vol. I, Memoirs of the Queensland Museum, pp. 176-189.

5. ELASMUS CAIRNSENSIS Girault. Female.

Like *flavipostscutellum* but the orange portion of the abdomen much longer, decidedly twice the length of the distal black portion.

Habitat: Cairns District, Queensland.

Type: No. *I. 1289*, South Australian Museum, Adelaide.

6. ELASMUS DODDI Girault. Female.

Like *formosus* but the scutellum wholly black (except narrowly at middle of side), the vertex wholly yellow, the tip of *postscutellum* black.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1606*, Queensland Museum.

7. ELASMUS PALLIDICORNIS Girault. Female.

Like *cyaneus* Girault but entirely dark metallic purplish green, only the tip of the scape and pedicel and remainder of antennæ being yellow brown. Mandibles 5-dentate.

Habitat: Hughenden, Queensland.

Type: No. *Hy 1607*, Queensland Museum.

8. ELASMUS KURANDAENSIS Girault. Female

Like *speciosissimus* but lemon yellow, the abdomen deep orange; scutellum wholly greenish; metallic coloration of the scutum is continued caudad along the meson to the scutellum.

Habitat: Kuranda, Queensland.

Type: No. *Hy 1608*, Queensland Museum.

9. ELASMUS QUEENSLANDICUS Girault. Female.

Like *formosus* but the base of the abdomen with a distinct, moderately broad black stripe across it.

Habitat: Kuranda, Queensland.

Type: No. *Hy 1609*, Queensland Museum.

10. ELASMUS LIVIDUS Girault. Female.

Like *proserpinensis* Girault but metallic blue-green, the abdomen dark red ventrad except at each end, the coxæ black (hind coxa white at tip), also the femora (hind femur white at base, others toward tip); knees and tibiæ white; tegulæ concolorous. Mandibles with seven teeth.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1610*, Queensland Museum.

11. ELASMUS ORIENTALIS Girault. Female.

Like *pallidicornis* but the antennæ concolorous with the body, the scape pale brown and the cephalic tibia and all knees white; the funicle joints are subequal, all distinctly longer than wide.

Habitat: Kuranda, Queensland.

Type: No. *Hy 1611*, Queensland Museum.

12. ELASMUS MARGISCUTELLUM Girault. Female.

Dark metallic green, the distal margins of scutellum and postscutellum margined with lemon yellow; intermediate orange yellow portion of abdomen with a longitudinal row of from 3 to 4 black spots on each side. Mandibles with *eleven* teeth.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1612*, Queensland Museum.

13. ELASMUS IGNORABILIS new species.*

Female:—Length, 1·75 mm.

At once distinguished by the colour of the abdomen which from above has two rather narrow transverse orange yellow stripes across it at about proximal third and proximal two thirds, otherwise (dorsad) shining black (metallic green proximad of the first transverse stripe). Dark metallic purplish, the abdomen beneath and the legs pale yellow, also the scape; flagellum and hind coxæ above concolorous or blackish. Mesopostscutellum obscurely lemon yellow. Tarsi blackish. Valves of ovipositor black. Tegulæ pale yellow. First two funicle joints subequal, each a little longer than the third which is longer than wide, all longer than the pedicel.

Male:—Not known.

Described from one female captured by sweeping along a jungle path, July 13, 1913.

Habitat: Harvey's Creek (Cairns), Queensland.

Type: No. *Hy 1613*, Queensland Museum, the above specimen on a tag.

14. ELASMUS SPLENDIDUS Girault.

A female by sweeping forest, July. 26, 1913, at Meerawa (Cairns), Queensland.

* Magnification of this and following species as previously.

15. ELASMUS MACULATIPENNIS new species.

Female:—Length, 3·15 mm. Robust.

Agreeing in all details with the original description of *splendidus* Girault excepting that the face is lemon yellow below the antennæ only, the abdomen is orange yellow and with four black spots between base and tip, the first two joined, forming a cross-stripe, the second two nearly so; also at tip a rather broad black (metallic) stripe precedes the black at tip; the scutellum is wholly concolorous and all of proximal fourth of hind coxa except a small spot at base of upper margin; the yellow on the pronotum is caudad and just above front coxa; the antennæ the same. Mandibles with five teeth. Characterized principally, however, in bearing on the fore wing a distinct sooty spot distad on the blade which forms a more or less distinct oblique stripe across the blade from beneath the postmarginal and distal half or less of marginal veins.

Male:—Not known.

Described from a female captured by sweeping in forest, August 2, 1913.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1614*, Queensland Museum, the above specimen on a tag (with the type of the variety described next), the head on a slide (with the type head of the variety).

Later a second female was found, captured in July.

ELASMUS MACULATIPENNIS BIGUTTATUS new variety.

Female:—The same as *maculatipennis* but the abdomen bears only the two proximal black spots which in this case are small and perfectly round dots. Also the hind coxa is as described for *splendidus*.

Described from a female captured with the typical form. *Type,* see preceding. Subsequently, another female of this variety was found, captured in December, 1912, by sweeping grass along a forest streamlet.

16. ELASMUS STELLATUS new species.

Female:—Length, 1·80 mm.

Like *nigriscutellum* but the scutellum margined all round with lemon yellow; the dorsal half of occiput not black but with only a black loop ascending to meson of occipital margin, the central spot of vertex not connecting laterad with the eyes; there is a black spot on each side of axilla confluent with the latter's blackness. First ring-joint large, triangular. Mandibles 5-dentate. On the mesoscutum there is a black dot at each side near edge about centrally; extreme cephalic end of pronotum black; at base of abdomen, the three spots are

wedge-shaped, longer than wide. Wings hyaline. At distal third of abdomen, centrally, dorsal aspect, there is a wedge-shaped black dot. Extreme tip of abdomen black.

Male:—Not known.

Described from a female captured by sweeping in forest, August 3, 1913.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1615*, Queensland Museum, the above specimen on a tag, the head on a slide with the type head of *Elasmus maculatipennis* Girault.

17. ELASMUS DIVINUS new species.

Female:—Length, 2·75 mm. Slender.

Differing from *maculatipennis* in bearing no yellow on the head, only the postscutellum and a spot in front of the tegulæ (crossing the lateral margin of scutum, directly cephalad of the axilla) being lemon yellow; the whole dorsum of the abdomen is concolorous and the distal fourth beneath. Fore wings characterized by bearing a distinct clavate sooty marking which leaves the distal end of the venation and curves directly caudad along the longitudinal axis of the blade to about the midpoint toward base. This marking appears to be the proximal accented boundary of the slight but distinct and uniform fumation of the blade distad of it. Dark metallic blue; trochanters, tibiæ, proximal half of hind coxæ and femora, distal part of first coxa, white; scape white, the funicle joints equal (each a little longer than first club joint), all much longer than the pedicel; two ring-joints. Scape blotched with dusky along the sides. Mandibles 7-dentate.

Described from one female, August 13, 1913. Sweeping grass along a streamlet in forest.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1616*, Queensland Museum, the above specimen on a tag, the head on a slide with the type head of *E. uniguttata* Girault.

18. ELASMUS UNIGUTTATA new species.

Female:—Length, 2·00 mm.

Characterized by bearing on the abdomen a moderately large, black, round spot dorso-mesad a little before tip; otherwise coloured like *serenus* but the flagellum is black; black area on vertex wide, leaving the space between it and the eyes a narrow line of yellow; abdomen suffused with reddish; the very short blackish line across base of abdomen accented laterally a short distance down

each edge toward tip; tip of abdomen concolorous, of the ovipositor valves black. Propodeum black mesially, also the occiput dorsad (mesially). Wings hyaline. Mandibles 5-dentate.

Male:—Unknown.

Described from one female captured August 5, 1913, by sweeping in forest.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1617*, Queensland Museum, the above specimen on a tag, the head on a slide.

19. ELASMUS MANDIBULARIS new species.

Female:—Length, about 1·85 mm. Stout.

Like *cyanicilla* Girault but the mandibles about 12-dentate and long, the cephalic tibiæ pale brown. Wings hyaline. Funicle joints shortening in succession, the first a little longer than the second, the third longer than the short pedicel and also than the first club joint, somewhat longer than wide. Scape mostly concolorous. Scutellum reticulated scaly, with only several large setæ.

Male:—Not known.

Described from one female captured by sweeping in forest, August 5, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1618*, Queensland Museum, the above specimen on a tag, the head on a slide.

Later another female was found in the same collection; its body was decidedly greenish rather than bluish as with the type specimen. However, I could not distinguish between them otherwise.

Genus EURYISCHIA Howard.

The encyrtid genus mentioned previously (I., p. 176) as bearing elasmid coxæ and wings was this genus whose position is undoubtedly correct. I have since described the following species. The tarsi are 5-jointed. The antennæ need careful examination, since I believe two ring-joints are present and once suspected three; for several of the Australian species only one is recorded and, I believe, none were found in *sumneri*.

1. EURYISCHIA SUMNERI Girault. Female.

Black-blue with the distal third or more of fore wing embrowned; scutellum finely alutaceous, the scutum the same but clothed with dense, stiff, black bristles. Bristles on proximal part of fore wing as in *inopinata* Masi. Mandibles tridentate, the inner tooth shorter, broad and truncate. First funicle joint subquadrate.

Habitat: Capeville (Pentland), Queensland. Forest.

Type: No. *Hy 1619*, Queensland Museum.

The sides of the propodeum in the following species and *sumneri* (dorsad) are finely reticulated, glabrous mesially; the large bristles in the wings of *sumneri* as in *inopinata*.

2. EURYISCHIA NIGRA new species.

Female:—Length, 1·35 mm.

Like the following species (*nigrella*) but the head differently sculptured being very finely circularly striate, in the next species finely scaly; the mandibles are 3-dentate but the two inner teeth are formed by the concaved apical margin of a second, broad tooth (same in *nigrella*). Propodeum glabrous, without a carina. Scutellum hairy but not so densely as the scutum (only two or four long setæ in the next species). Antennæ missing. Like *sumneri* but differing apparently in the dentation of the mandibles, the more hairy scutellum. Also differing from the next species in bearing but two large equal setæ in a longitudinal line centrally in the blade under the submarginal vein (as in *inopinata*; in the next species there are two parallel rows, each row with 5 or 6 setæ, decreasing notably in size proximad). Discal ciliation from about proximal third of marginal vein, the fore wing uniformly, slightly embrowned throughout, the hind wing hyaline. A little staining around the stigmal vein.

Male:—Not known.

From one specimen captured by sweeping grass in forest, April 18, 1912.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1620*, Queensland Museum, the above specimen on a tag, head and wings on a slide (with type of *nigrella*).

3. EURYISCHIA NIGRELLA new species.

Female:—Length, 1 mm.

Like the preceding species (*nigra*) but smaller and differing as noted above. Differs from *sumneri* in mandibular structure, the shorter first funicle joint which is plainly wider than long and in the wings and much smaller size. A single ring-joint is present.

Male:—Not known.

From one specimen captured with *sumneri*.

Habitat: Capeville (Pentland), Queensland.

Type: No. *Hy 1621*, Queensland Museum, the above specimen on a slide.

4. EURYISCHIA SHAKESPEAREI new species.

Female:—Length, 1·10 mm.

At once differing from the preceding species in having a distinct fumated area on the fore wing somewhat as in *inopinata* Masi but differing in its shape; fore wing otherwise as figured for that species. Antennæ with one (possibly two) ring-joints and at least three funicle joints, the rest missing. The marking on the fore wing is a conspicuous globular sooty brown area appended from the stigmal vein and distal half or more of the marginal, extending nearly across to the caudal margin but fading somewhat before reaching it; its proximal margin is V- or inverted caret-shaped and the discal ciliation proximad is coterminous with that margin; the wing distad of the marking is fumated as usual (as in the preceding species) but just distad of the distal margin of the more deeply infuscated marking there is a more or less subhyaline path across the wing. At the base of the marginal vein, there are one or two very large cilia or bristles in an oblique caudo-proximal line; close against the venation, the discal ciliation extends proximad same distance nearly to the middle of the submarginal vein and less densely nearly to the base. Pedicel rather long, longer than the three funicle joints which are subquadrate. Mandibles bidentate, the second tooth large, broadly truncate at apex. Costal cell with discal ciliation.

Male:—Not known.

Described from a female captured by sweeping in forest, May 26, 1912.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1622*, Queensland Museum, the above specimen on a tag, the head on a slide.

5. EURYISCHIA LESTOPHONI Howard.

This species has been recorded from Sydney, New South Wales, as a parasite of *Icerya rosæ* on the plant *Grevillea*.

6. EURYISCHIA MELANCHOLICA new species.

Female:—Length, 1·50 mm.

Like *nigra* but the scutellum as in *nigrella*. Distal third or more of fore wing embrowned, darker about the stigmal vein, there the proximal margin of the fumation accented to form a rather narrow cross-stripe from the stigmal vein. Scape and pedicel dusky, rest of antenna yellowish; one ring-joint.

Male:—Not known.

Described from one female captured by sweeping in forest, August 4, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1623*, Queensland Museum, the above specimen on a tag, the head on a slide with the type appendages of *shakespearei*.

7. EURYISCHIA UNMACULATIPENNIS new species.

Female:—Length, 2 mm.

Characterized by bearing on the fore wing a rounded fuscous spot under the stigmal vein; wholly black, the antennæ black; otherwise as in *inopinata* except that all of the funicle joints are subequal and wider than long. From *lestophoni*, the spot on the fore wings differs in being up against the base of the stigmal vein instead of being appended from the tip of that vein or nearly (judging from the figure of *lestophoni* given by Koebele, 1890). Distal third of fore wing slightly infumated.

Male:—Unknown.

Described from one female captured among herbage, April 6, 1913 (H. Hacker).

Habitat: Brisbane, Queensland.

Type: No. *Hy 1624*, Queensland Museum, the above specimen on a slide.

TABLE TO THE AUSTRALIAN SPECIES OF *EURYISCHIA* HOWARD.

Fore wings with a large distinct round spot near the stigmal vein.	
The round spot farther distad, appended from the stigmal knob; two discal bristles	*lestophoni* Howard.
The round spot farther proximad, touching the base of the stigmal vein; two discal bristles	*unmaculatipennis* Girault.
Fore wings with a straight rather narrow stripe across them from the stigmal vein, from thence more lightly embrowned.	
Like *nigra* but the scutellum as in *sumneri*	*melancholica* Girault.
Fore wings with a distinct broad fumated area across them near end of venation followed by a subhyaline path.	
Like *inopinata* Masi; fumated area globular, appended from the stigmal vein and distal half or more of marginal, its proximal margin inverted caret-shaped; mandibles bidentate; two discal bristles	*shakespearei* Girault.

Fore wings uniformly embrowned at distal third or more.

Fore wing with two rows of bristles under the submarginal vein (10 or more bristles).

Scutellum with only four setæ; fore wing slightly embrowned throughout; head finely scaly .. *nigrella* Girault.

Fore wing with but one row of large bristles under the submarginal vein (two bristles).

Mandibles tridentate, the inner tooth broad; scutellum with about four setæ; fore wings embrowned uniformly from proximal two thirds to apex .. *sumneri* Girault.

Mandibles bidentate, the inner tooth broad; head finely circularly striate; scutellum with many setæ but not as hairy as the scutum; fore wing slightly embrowned throughout .. .. *nigra* Girault.

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1890. Koebele, Albert. Bull. No. 21, revised edition, Division of Entomology, U. S. Department of Agriculture, Washington, D.C., U.S.A., pp. 17, 18, fig. 8.

AUSTRALIAN HYMENOPTERA CHALCIDOIDEA—IV.*

The Family Eulophidae with Descriptions of New Genera and Species.

By A. A. Girault.

INTRODUCTION.

Of all the families of what is undoubtedly the largest group numerically of the great order Hymenoptera, this, the Eulophidæ, seems to be the representative one in the Australian fauna, the number of genera and species exceeding those of any other family of the great complex. This paper records but few of the species but perhaps most of the genera existing to-day on the Australian continent. The groups or tribes established by Ashmead (1904) have been adhered to because they seem to be natural but a large number of new genera have been established more especially in the Tetrastichinæ. These genera I believe to be natural groups but for the present they are established especially because it seems necessary to do so in order to avoid that greatest of difficulties with these minute insects, namely, identification of specific forms. It has been true in the past that identification was thought to be insured by a general description of the species, omitting the generic characters since these were understood as being present. But this practice has failed signally in establishing identity of species, for the reasons that some species are carelessly or otherwise referred wrongfully to genera, others differ somewhat from the generic description and these differences are not pointed out while still others differ in smaller characters, those not included within the description of the old genera and not being brought to the attention of the student are, at the time, overlooked. The need and use of revisions show how common and ordinary are the great number of omissions made in descriptions of species and how helpless the student becomes when attempting identification upon these incomplete diagnoses. All of these serious difficulties will be obviated by this what is called (wrongfully, I think and hope) splitting. The student is forced to be careful, the generic diagnosis is as concise as nature allows, specific characters are readily grasped and any variations from the genotype easily and quickly noted. These are the conveniences afforded by the establishment of these genera. Identification is the basis of nomenclature.

On the other hand, nomenclature is the tool or convenience of classification which is concerned with heredity. The tribes of the Eulophidæ seem natural but it is difficult to define natural genera; yet going upon the principle that genera are to species as species are to varieties and so on (that is genera are groups comprised of clusters of species, groups within a group) we may say that a genus is natural and valid or good when all of its species or groups of species are mutually inclusive and do not vary enough from each other to intergrade with the species of other mutually inclusive groups (or other valid genera). Thus, *Tetrastichus* Haliday and *Aprostocctus* Westwood are held to be valid genera differing in but one particular, the number of the ring-joints of the antennæ. But if there should be found a species of either group in which the number of ring-joints was inconstant, intergrading is established and the two genera must be considered as one, since their inherited structure is the same. This is the principle upon which I have based these genera. In other language they are based upon the constancy (or supposed constancy) of a character or of characters which in turn are

* Contribution No. 15, Entomological Laboratory, Bureau of Sugar Experiment Stations, Bundaberg, Queensland.

an index of blood relationship. I believe that I have thus insured identification of species. As to the genera time and increased knowledge will decide their fate at the which I am not and need not, for the present, be greatly concerned. I am not proud of them, since they are not mine but rather nature's.

In work of this kind to escape error is impossible but the enormous number of errors so far made are due largely to one fact, namely, to what may be called piece-work in taxonomy. A systematist scatters his energy and attention over a large field with the idea, though why so I know not, that in so doing he is showing greater ability, sagacity and broadness; he describes a few species here one time, a few there another with the result that, not having an intimate knowledge of genera, these species often become misplaced, the descriptions are illy made and unbalanced and in the end there comes as a consequence that feeling of helplessness in regard to specific identities. In dealing with large complexes and in the relationships of orders and higher groups extensive and broad study is necessary but in describing species intensive study is as equally necessary and if variety is needed or desired a group should be taken by itself, studied intensively, advanced as much as possible and when completed left; any other group may then be studied in the same manner as the first. In this way, specific identities will be insured. Some years ago it was the common practice for many systematists simultaneously to describe species in several orders of insects but if these men failed to insure identity, how can a modern systematist hope to do so? Of those men, none are more notable for failure in this respect than Francis Walker. Was he broadening his knowledge by incorrectly describing species or was he pampering his vanity? He was certainly mistaken and unquestionably wasted a large amount of energy and caused an enormous amount of delay; his efforts resulted in impediments. If the idea in describing species is to make them known, intensive study seems necessary; if, however, the motive is otherwise, no study at all is needed, since in the end the purposes are served by merely publishing the new name and designating a type. The descriptions are made for others and the future.

The principles underlying taxonomy are the same for all groups. He who knows them for one group knows them for all but is necessarily unacquainted with the kind and scope of variation peculiar to every group of animals and because of the enormous number is incompetent to judge of species within them without that insight and knowledge gained from comparative and intensive study. A sincere desire to advance our knowledge of specific forms requires intensive study. A desire merely to describe as many forms as possible, whatever the motive, requires none at all.

Systematists seem to fail in another respect, a fruitful cause of trouble to the future: too often they are not self-critical. If errors are inevitable, which they seem at present, many could be corrected by their agents. This does not seem the usual practice. An individual may see at least some of his own mistakes much more clearly than others, more especially if he is constantly on the alert for them and constantly revising and criticising his own work. An error uncorrected by its author may cause endless trouble in the future. Frankness and more explanation in regard to changes made, a feeling of greater responsibility to the future, greater sincerity, less egotism and vanity and much more thought for clear, intelligible and accurate work, these in themselves, will produce tremendous advances in our knowledge of specific forms. Systematic work is fundamental; the descriptive part of it by no means comprises its scope.

ACKNOWLEDGMENT.

In the preparation of this paper I have been greatly aided by my wife who has, in the absence of unobtainable clerical assistance, copied out nearly the entire manuscript.

SUBFAMILY ENTEDONINÆ.*

TRIBE ENTEDONINI.

GENUS ENTEDON Dalman.

1. ENTEDON DIOCLES Walker. Female.

Entedon (*Omphale*, Haliday) *Diocles*, Walker, 1839, p. 40.

Habitat: Sydney, New South Wales.

2. ENTEDON HESTIA Walker. Female.

Eulophus Hestia Walker, 1839, p. 46.

Entedon Hestia Walker, 1846, p. 66—de Dalla Torre, 1898, p. 38.

Habitat: Hobart, Tasmania.

3. ENTEDON PRONAPIS Walker. Male.

Entedon Pronapis Walker, 1839, p. 40.

Habitat: Sydney, New South Wales.

4. ENTEDON PODAGRIONIDIS (Girault).

Mestocharis podagrionidis Girault.

Like *Mestocharoideus cyaneus* but smaller and the antennæ with only one ring-joint, the funicle joints shorter, the distal one usually wider than long and shorter than either the pedicel or the first club joint. Otherwise the same but the mandibles are tridentate, a third tooth being represented inwardly, though much shorter than the two outer acute ones. Type re-examined.

Habitat: Nelson (Cairns), Queensland. Associated with the eggs of mantids.

Type: No. *Hy 1633*, in the Queensland Museum.

MESTOCHAROIDEUS new genus.

Female:—Like *Mestocharis* Foerster but the antennæ with two ring-joints, the mandibles bidentate. True lateral carinæ absent. Median carina paired.

Type: Mestocharis cyanea Girault.

1. (MESTOCHARIS) MESTOCHAROIDEUS CYANEUS (Girault). Female. Genotype.

Deep metallic blue, the tarsi white; antennæ concolorous. Reticulated. Funicle 1 longest.

Habitat: Nelson (Cairns), Queensland. Forest.

Type: No. *Hy 1634*, Queensland Museum.

GENUS MESTOCHARIS Foerster.

1. MESTOCHARIS LIVIDUS new species.

Female:—Length, 1.25 mm.

* For a table of subfamilies, see pp. 294-295.

Like *Entedon podagrioniāis* (Girault) but the distal funicle joint is somewhat longer than wide; the lateral carinæ of the propodeum are not at the lateral margin but not very far laterad from the pair of median carinæ, the lateral margin of propodeum also carinate as well as fore and hind margins. Intermediate tibial spurs only slightly smaller than those of the hind legs. Median carinæ diverging, distad at apex with a very short carina between them. Antennæ 8-jointed, one ring-joint, the club 2-jointed. Hind coxæ polished, the tibiæ metallic green. Space between median carinæ rather broad, smooth. Thorax (excepting propodeum) roughly scaly. Mandibles with two equal teeth. Hind tibial spurs long and stout. Second segment of abdomen occupying about half the surface.

Male:—The same but a third smaller, the abdomen much shorter, at apex broadly truncate. Antennæ apparently with two ring-joints.

Described from three males, seven females labelled "No. 14. From *Epilachne 28-punctata*. Darwin, Northern Territory, 19 May, 1913 (G. F. Hill)." Later, six females labelled "No. 6. Bachelor, N.T., Jan. 23, 1913 (G. F. Hill)."

Habitat: Port Darwin and Bachelor, Northern Territory.

Type: No. *Hy 1635*, Queensland Museum, one female on a tag, two males, six females on a slide (plus 3 female heads).

2. MESTOCHARIS SILVENSIS new species.

Female:—Length, 1.16 mm.

The same as the preceding species but the teeth of the mandibles longer and strong, the inner margin of the second tooth serrate below tip; also the pedicel is distinctly longer than the globular distal funicle joint but not much longer. In *lividus* the first funicle joint is distinctly longer than the pedicel, the latter subequal to the distal funicle joint. Parapsidal furrows caudad broadened from narrow sutures to shallow depressions. Hind and intermediate tibial spurs small and normal. Otherwise as in *lividus*.

Male:—Not known.

Described from one female captured August 31, 1913, by sweeping in a jungle pocket.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1636*, Queensland Museum, the above specimen on a tag, the head on a slide.

3. MESTOCHARIS VETERNOSUS new species.

Female:—Length, 0.70 mm.

Differs from *lividus* in having the tibial spurs somewhat enlarged only and in having the caudal margin of the second segment of abdomen deeply cut into at the meson or incised, the third segment longer than usual, much longer than the next two which are transverse linear. Postmarginal vein longer than stigmal. Funicle joints subglobular, the first a little longer. Mandibles bidentate.

From a female captured by sweeping in a strip of jungle bordering a streamlet, November 4, 1912.

Habitat: Proserpine, Queensland.

Type: No. *Hy 1637*, Queensland Museum, the above specimen on a tag.

GENUS HORISMENUS Walker.

1. HORISMENUS ANTIOPA new species.

Female:—Length, 1.30 mm.

Metallic aeneous green, the wings hyaline, the legs straw yellow except the coxæ; club 2-jointed, funicle 3-jointed. Thorax coarsely reticulated, the propodeum nearly smooth, with a pair of diverging median carinæ, the lateral carinæ absent. Parapsidal furrows represented by a conspicuous longitudinal fovea on each side caudad. Mandibles bidentate. Second segment of abdomen occupying two thirds of the surface. Postmarginal vein absent. Median sulcus of scutellum short, only along proximal fourth. Caudal and lateral margins of propodeum strongly carinate. Axillae subglabrous; scutellum less coarse than scutum and parapsides. Pedicel shorter than funicle 1. Terminal spur of club curved. Type re-examined.

Habitat: Nelson (Cairns), Queensland. Jungle.

Type: No. *Hy 1638*, Queensland Museum, the above specimen on a tag, the head on a slide.

CHRYSOATOMOIDES new genus.

Female:—Like *Chrysoatomus* Ashmead but the antennæ filiform, the funicle joints long and slender; propodeum with a median carina.

Male:—Not known.

Type: The following species.

1. CHRYSOATOMOIDES LATIPENNIS (Girault).

Chrysoatomus latipennis Girault.

Dark metallic blue, the legs yellow except the coxæ; scape yellowish, the flagellum dark; wings lightly stained; funicle joints subequal, tapering distad. Polygonally reticulated.

Habitat: Babinda, Queensland. Jungle.

Type: No. *Hy 1639*, Queensland Museum.

GENUS NEODEROSTENUS Girault.

Differs from *Derostenus* Westwood in having the propodeum wholly without carinæ; funicle 3-jointed, club 2-jointed.

1. NEODEROSTENUS AUSTRALIENSIS Girault. Female. Genotype.

Metallic green, the legs wholly white, also the scape; petiole yellowish brown; fore wings with a distinct sooty spot under the end of the marginal vein. Head and thorax scaly. Club joints about equal.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1640*, Queensland Museum.

GENUS APLEUROTROPIS Girault.

Differing from *Pleurotropis* in bearing two ring-joints and lateral carinæ on the propodeum together with a median sulcus; scutum with a median groove along distal third. At least three funicle joints. Postmarginal and stigmal veins short.

1. APLEUROTROPIS VIRIDIS Girault. Female. Genotype.

Brilliant metallic green, the wing hyaline, the legs white except the coxæ; scape white with a dusky dot at tip above, the rest of the antennæ dark metallic; first funicle joint longest, about thrice the length of pedicel.

Habitat: Townsville, Queensland.

Type: No. *Hy 1641,* Queensland Museum.

PLEUROTROPOMYIA new genus.

Female:—Head slightly wider than long (cephalic aspect), the antennæ inserted somewhat below the middle of the face, 10-jointed with three ring-joints, the club 2-jointed. Postmarginal vein elongate, over twice the length of the stigmal, the marginal very long, over twice the length of the submarginal. Scutum with a median groove at distal third. Scutellum simple, the propodeum with a pair of median carinæ, the lateral carinæ long and complete, forked cephalad, the lateral fork short, curving caudo-laterad partly around (but mesad of) the minute spiracle. Parapsidal furrows complete, distinct, shortly curved off. Mandibles 4-dentate, the two inner teeth much shorter and minute. Petiole of abdomen somewhat longer than wide, the second segment largest, occupying somewhat over a fourth of the surface. A complete sulcus just laterad of propodeal spiracle. Eyes hairy.

Male:—Not known.

Type: The following species.

1. PLEUROTROPOMYIA GROTIUSI new species.

Female:—Length, 1.50 mm.

Brilliant metallic green, the wings hyaline, the legs white except coxæ. Scape white, rest of antennæ black; distal half of abdomen bluish purple; pedicel shorter than any of the funicle joints of which the first is longest, a little longer than the club (excluding the terminal spur), the third funicle joint longer than the first club joint which is subequal to the pedicel and longer than the body of the second club joint. Thorax with coarse scaly reticulation (not raised), propodeum glabrous.

Described from one female captured August 31, 1913, by sweeping in jungle. Respectfully dedicated to Hugo Grotius.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1642,* Queensland Museum, the above specimen on a tag, the head on a slide.

A second female May 6, 1913, by sweeping jungle growth along a forest streamlet.

2. PLEUROTROPOMYIA SPENCERI new species.

Female:—Length, 0.80 mm.

Like *grotiusi* but much smaller, the funicle joints all shorter, the first only one and a-half times longer than wide (the same in the type species but wider) and not distinctly longer than the third, the club slightly longer than it (excluding terminal spine). Median carinæ in both species diverged at base. (Spiracular sulcus not seen.)

Described from one female captured by sweeping in forest, April 20, 1913. Dedicated to Herbert Spencer.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1643*, Queensland Museum, the above specimen on a tag, the head and a fore wing on a slide.

3. PLEUROTROPOMYIA SEDITIOSUS new species.

Female:—Length, 1.40 mm.

Like *grotiusi* nearly but not quite as robust and the sulcus on the scutum is a half shorter, not more than a sixth the length of the scutum; moreover, the reticulation just cephalad of it forms larger areas than in *grotiusi* (*i.e.*, is coarser). In *grotiusi* the triangular inner (meso-caudal) piece of each parapside is smooth and shining, bearing only a single fovea cephalad of the centre; in this species the same but the piece is narrower and the fovea at the apex; also their mesal ends are farther away from the median sulcus at its apex (touching or nearly in *grotiusi*). Otherwise the same or nearly.

Male:—Not known.

Described from one female captured by sweeping in forest, August 2, 1913.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1644*, Queensland Museum, the above specimen on a tag, the head on a slide.

A second female was captured in forest at Nelson, September 6, 1913.

APLEUROTROPOPSEUS new genus.

Female:—Like *Pleurotropopseus* Girault but the lateral carinæ straight and paired, the antennæ without ring-joints, 7-jointed (the club 2-jointed), the median sulcus of scutum somewhat longer and the postmarginal vein very long, two and a-half or more times longer than the stigmal. Marginal vein much over twice the length of the submarginal. Second abdominal segment about a third of the surface.

Male:—Not known.

Type: The following species.

1. APLEUROTROPOPSEUS ALBIPES new species.

Female:—Length, 1.50 mm.

Metallic blue-green, the wings hyaline, the scape white except at tip, the rest of the antennæ black, the coxæ concolorous, the rest of the legs white. Thorax reticulated. First funicle joint longest, the third oval, longer than the short pedicel.

Described from a female taken by sweeping *Leptospermum*, April 16, 1913 (H. Hacker) and another taken April 20, 1913, by sweeping eucalypts.

Habitat: Brisbane, Queensland.

Type: No. *Hy 1645*, Queensland Museum, the above specimens each on a slide.

AMESTOCHARIS new genus.

Female:—Antennæ 9-jointed with two ring-joints, the club 3-jointed. Parapsidal furrows represented by a groove on each side at caudal half; scutellum simple; propodeum with a pair of median carinæ which diverge from base, each one connected at apex along caudal margin with the lateral carina which forks at apex; surface polished. Petiole longer than

wide, the second segment occupying from half to three fourths of the surface. Mandibles bidentate. Postmarginal vein slightly longer than the stigmal, both short. Cephalic margin of propodeum carinate.

Male:—Not known.

Type: The following species.

1. AMESTOCHARIS GOONDIENSIS new species.

Female:—Length, 1.25 mm.

Metallic aeneous green tinged with bluish, the wings clear, the coxæ concolorous, the legs white; thorax reticulated, the lines raised and coarse. Scape and ring-joints yellowish white, rest of antennæ concolorous with body; pedicel shorter than any of the following joints, the first funicle joint longest, over one and a half times the length of the pedicel, the next joints each shortening slightly in succession; third club joint ending in a stout, somewhat curved seta (in reality two setæ, the curved one the longer); both funicle joints narrowing distad.

Described from a single female captured by sweeping in jungle, July 23, 1912.

Habitat: Goondi and Nelson, Queensland.

Type: No. *Hy 1646*, Queensland Museum, the above specimen on a tag, the head on a slide.

A second female was captured by sweeping in jungle at Nelson, N.Q., June, 1913 and a third in July. There is a fovea at base of scutellum at the meson.

2. AMESTOCHARIS CONCOLORIPES new species.

Female:—Length, 1.30 mm.

Metallic green, the abdomen darker, the wings hyaline, the legs concolorous with thorax, the three proximal tarsal joints white; base of abdomen green; pronotum bluish, glabrous; thorax coarsely reticulate scaly, the distal third of scutellum glabrous, also the propodeum; spiracle minute, round; petiole shagreened, the abdomen finely scaly except most of the long second segment. Antennæ wholly concolorous, the first funicle joint much the longest of the flagellum, of whose joints all are longer than wide; first and second club joints about equal. Mandibles tridentate.

Male:—Not known.

Described from three females captured by sweeping in forest and jungle, August 30, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1647*, Queensland Museum, one of the above specimens on a tag, the head on a slide with the head of *fulvipes*.

3. AMESTOCHARIS FULVIPES new species.

Female:—Length, 1.00 mm.

Like *goondiensis* but the legs brown, the parapsidal furrows barely indicated caudad by an obtuse depression; second abdominal segment only about half of the abdomen, the latter

pointed conical, not long; second funicle joint slightly shorter than the first which is barely longer than the pedicel, usually subequal to it; club joints more or less subequal to the funicle joints.

Described from one female captured by sweeping miscellaneous vegetation, August 30, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1648*, Queensland Museum, the above specimen on a tag, the head on a slide with the head of *concoloripes*.

4. AMESTOCHARIS NYMPHA new species.

Female:—Length, 1.20 mm.

Very much like *concoloripes* Girault but nearly black with a purplish tinge and the proximal two thirds or more of scutellum is longitudinally reticulated the polygonal scaliness of the scutum becoming changed into long figures bounded by parallel, raised lines and leaving just before tip a rounded smooth area which is not glabrous. Only the propodeum metallic shining green. Also the three teeth of the mandibles are longer and the second funicle joint barely longer than the third and not tapering at apex so much.

Male:—Not known.

Described from one female captured from a window, May, 1912.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1649*, Queensland Museum, the above specimen on a tag, the head on a slide.

PELOROTELOPSELLA new genus.

Female:—Like *Pseudacrias* Girault but the propodeal meson bears a median carina bounded on each side by a deep sulcus, the lateral carinæ present,* the propodeum tricarinate. Scutellum wholly sculptured, the parapsidal furrows complete. Second tooth of mandible serrate. Thorax umbilicately punctate, the propodeum polished on each side of meson, the pronotum reticulated, smoother along the median line. Propodeal spiracle minute, round. Antennæ the same but the definite number of ring-joints is 2, the antennæ 9-jointed.

Male:—Unknown.

Type: The following species.

1. PELOROTELOPSELLA GENU new species.

Female:—Length, 1.75 mm.

Black-blue, opaque, the abdomen and propodeum dark metallic blue-green, the wings hyaline, the legs dark metallic blue, except the contrasting silvery white knees, distal thirds of tibiæ and tarsi. Antennæ dark metallic blue but the scape white except at distal end, first funicle joint longest, somewhat longer than the pedicel, the distal joint spherical, the distal club joint shorter than the proximal one, its nipple distinct but not long.

Described from one female captured by sweeping jungle growth along a forest streamlet, August 1, 1913.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1650*, Queensland Museum, the above specimen on a tag, the head on a slide.

* This is a mistake ; sulci take the place of lateral carinæ. Hind tibial spur stout.

PLEUROTROPPOPSIS new genus.

Female:—Body stout, agreeing with *Pleurotropis* and the antennæ 10-jointed but with three distinct ring-joints, the club only 2-jointed, the second joint terminating in a prominent setiform process. Eyes very hairy. Propodeum polished, strongly tricarinate. Stigmal vein very short, the postmarginal rather long, about twice the length of the stigmal. Parapsidal furrows represented by a long wedge-shaped sulcus running halfway up from caudal margin then narrowing from apex of the wedge and curving off, ending in the dorso-lateral aspect a little before cephalic margin in a fovea. Another larger and deep fovea at cephalic margin of scutum just meso-cephalad of the fovea and of the furrow. Petiole short; second abdominal segment occupying only a fourth of the surface. Scutellum simple. Mandibles with only two distinct teeth. Submarginal vein hardly broken, shorter than the marginal.

Male:—Not known.

Type: The following species.

1. PLEUROTROPPOPSIS MACULATIPENNIS new species.

Female:—Length, 2.10 mm.

Metallic blue-green, the legs concolorous except tips of tibiæ and tarsi which are white; venation sooty, the fore wing with a large dusky rounded blotch under the apex of the marginal and the stigmal veins. Pronotum subfoveate, the mesonotum scaly reticulated and sort of transversely lineolated. First ring-joint and proximal part of scape whitish, rest of antenna concolorous; funicle joints long, one side convex, the first longest, the third shortest, subequal to the rather long pedicel, both club joints shorter than the latter (excluding the terminal seta).

Described from one female captured by sweeping in a jungle pocket, July 24, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. Hy 1651, Queensland Museum, the above specimen on a tag, the head on a slide with type head of *Achrysocharella aurea* Girault.

PLEUROTROPOPSEUS new genus.

Female:—Like *Apleurotropis* Girault but the propodeum with a median carina instead of a sulcus, the lateral carinæ V-shaped, the arms of the V oblique, pointing more or less cephalo-laterad. Also the median groove of scutum is confined to distal fourth. Parapsidal furrows mere sutures, complete but curved off rather shortly laterad. Mandibles tridentate. Stigmal vein very short but longer than the postmarginal. Wings hyaline.

Male:—Unknown.

Type: The following species.

1. PLEUROTROPOPSEUS PURPUREA new species.

Female:—Length, 1.75 mm.

Dark metallic purple, polished, the abdomen at base blue, tarsi yellowish. Antennæ concolorous, the first two funicle joints subequal, as long as the club, the third funicle joint a third shorter, longer than the pedicel. Thorax reticulated.

Described from one female captured by sweeping in the jungle, July 26, 1913.

Habitat: Meerawa (Cairns district), Queensland.

Type: No. *Hy 1653*, Queensland Museum, the above specimen on a tag, the head on a slide with the type head of *Opheliminus longfellowi* Girault.

GENUS PSEUDACRIAS Girault.

Female:—Characterised by bearing a bi- or tricarinate propodeal meson, the propodeum usually with five distinct carinæ, including the two lateral carinæ; propodeum polished, its caudal margin also strongly carinate. Scutellum more or less polished. Second abdominal segment much the longest, occupying from a third to over a half of the surface, the petiole short and stout, slightly wider than long. Parapsidal furrows usually complete, very narrow or like sutures and terminating in a shallow depression caudad. Stigmal and postmarginal veins short, the former a little the longer. Mandibles bidentate, the inner tooth usually with several minute sinuses just proximad of apex, mesad. Thorax reticulated, the lines raised, the pronotum polished but longitudinally wrinkled along cephalic margin, transverse. Funicle 3-jointed, the club 2-jointed, the second joint terminating in a prominent seta; three ring-joints. Hind tibial spur stout, half the length of the hind tarsi. Genus recovered from the Pediobiini (type re-examined).

Male:—Not known.

Type: Pseudacrias micans Girault.

1. PSEUDACRIAS MICANS Girault. Female. Genotype.

Shining bluish black, the propodeum with a straight median carina on each side of the meson, the middle of the three absent; tarsi white, except distal joint; wings hyaline; first funicle joint slightly the longest, the second club joint short, the first longer, longer than wide, subequal to the first funicle joint. Pronotum and distal half of scutellum shining but the latter with faint polygonal reticulation, the basal half of scutellum longitudinally striate. Parapsidal furrows represented by a fovea caudad and slightly indicated cephalad.

Habitat: Nelson (Cairns), Queensland. Jungle.

Type: No. *Hy 1653*, Queensland Museum.

2. PSEUDACRIAS CHALYBS new species.

Female:—Length, 1.80 mm.

Metallic cyaneus, the wings hyaline; proximal tarsal joints pallid; proximal club joint much longer than the distal yet not long, the funicle joints not long, the pedicel much smaller than them. Parapsidal furrows complete, the meson of propodeum tricarinate.

Described from a single female captured by sweeping grass along a forest streamlet, August 13, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1654*, Queensland Museum, the above specimen on a tag, the head on a slide.

3. PSEUDACRIAS AENEUS new species.

Female:—Length, 1.65 mm.

Dark aeneous green, the abdomen darker; the same otherwise as the second species excepting that the second abdominal segment is longer yet not occupying quite half of the

surface (as in the type species), the thorax is reticulated, the lines not raised and forming diamonds, the smooth path down meson of scutellum is rather obscure and the pronotum is finely reticulated. Antennæ with three ring-joints, the distal two short; pedicel longer, not much shorter than the first funicle joint. Inner or second tooth of mandible simple.

Male:—Not known.

Described from one female captured by sweeping foliage in a jungle pocket, June 5, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1655*, Queensland Museum, the above specimen on a tag, the head on a slide.

4. PSEUDACRIAS QUADRICARINATUS new species.

Female:—Length, 1.60 mm.

Differing from the preceding two species in lacking the median of the three carinæ at the meson but a space is left for it; it is slightly indicated in fact, the median carinæ diverging. Brilliant metallic green, the abdomen dark; like *aeneus* but the thorax with scaly network but not raised as in *aeneus* and there is a large distinct glabrous area at base of scutellum; proximal three fourths of second segment of abdomen and propodeum polished (the latter not so distad and laterad), the rest of abdomen densely scaly. Lateral carinæ forked distad. Petiole finely longitudinally lined; basal three fourths of abdominal segment 2 green. Pronotum glabrous. Antennæ concolorous; first funicle joint longest, 3 globular; club 1 much longer than 2. Mandibles 2-dentate, the second tooth as in *aeneus*. Second ring-joint very short.

Male:—Not known.

Described from one female captured by miscellaneous sweeping, August 13, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1656*, Queensland Museum, the above specimen on a tag, the head on a slide.

Genus METACRIAS Girault.

Differs from *Entedon* Dalman in having the median carina of the propodeum bounded on each side by a deep sulcus whose lateral margins are acute, the propodeal spiracle round and moderately small and the hind tibial spur elongate. The parapsidal furrows are about complete from cephalic margin but difficult to see, being shallow. The genus was first placed with the Pediobiini. (Type re-examined.)

1. METACRIAS AUSTRALIENSIS Girault. Female. Genotype.

Dark metallic bluish, the wings hyaline; legs concolorous, the knees, tips of tibiæ and tarsi white. Antennæ concolorous, the first funicle joint nearly as long as the club, the distal one subequal to the pedicel. Head and thorax coarsely reticulately punctate.

Habitat: Brisbane, Queensland.

Type: No. *Hy 1199*, Queensland Museum.

2. METACRIAS SECUNDUS new species.

Female:—Length, 2.00 mm.

Very similar to *australiensis* but the postmarginal vein absent, the thorax more aeneous and more deeply punctate, umbilicately punctate, the scape is metallic only at the middle portions, the ends white and the grooves on each side of the median carina of propodeum are shallower. Mandibles strongly bidentate. Both species have a more or less complete foveate curved sulcus in the stead of a lateral carina. Compared with types of *australiensis*. Ring-joint large. The scutellum in *australiensis* is raised reticulate not punctate, the areas deeper on the scutum.

Male:—Not known.

From one female captured in September, 1913 (A. P. Dodd).

Habitat: Kuranda, Queensland.

Type: No. *Hy 1657*, Queensland Museum, the above specimen on a tag, the head and hind legs on a slide.

In this species the parapsidal furrows are complete, not very distinct but more so than in the genotype.

DIAGNOSTIC ARRANGEMENT OF THE ENTEDONINE EULOPHIDÆ.

FEMALES. AUSTRALIA.

The abdomen is usually distinctly petiolate, the parapsidal furrows variable, complete or incomplete, but always plainly indicated cephalad or caudad; stigmal vein usually subsessile or very short, the marginal long. Forms always metallic blue, green or purple or else black, seldom with yellow on the body, the latter short and stout, the mandibles usually bi- or tridentate, the funicle never more than 4-jointed; with a scaly sculpture. Propodeum long and usually with carinæ. Second abdominal segment frequently elongate, the abdomen upturned.

I. Antennæ without ring-joints; scutellum simple.

Antennæ 7-jointed, the club 2-jointed; scutum with a median sulcus at distal half; postmarginal vein over twice the length of the stigmal, the marginal over twice the length of the submarginal; propodeum tricarnate.

Apleurotropopseus Girault (Type: *A. albipes* Girault).

II. Antennæ with one or more ring-joints; scutellum with or without a groove.

1. Scutellum with a median longitudinal grooved line only. Antennæ 8-jointed, the club 2-jointed, one ring-joint, the funicle 3-jointed.

Horismenus Walker (Type: *H. cleodora* Walker).

2. Scutellum simple, without longitudinal grooves.

(1) Antennæ with one ring-joint, the funicle 3-jointed.

Propodeum without true lateral carinæ but with a median carina.

Antennæ 8-jointed, the club 2-jointed, the terminal joint as usual with a stout spine; head very wide, the occiput concave, the propodeal spiracles large, oval, in depressions; scutellum sculptured; median carina of propodeum connected at apex with the carinated caudal margin. **Entedon** Dalman (Type: *E. eyanellus* Dalman).

The same; propodeal spiracle round, small, the median carina bounded by a deep sulcus on each side. Hind tibial spur elongate. Lateral carinæ represented by sulci.

Metacrias Girault (Type: *M. australiensis* Girault).

Propodeum wholly without carinæ, finely scaly. Antennæ 8-jointed, the club 2-jointed and with the usual terminal spine; postmarginal vein as long as the stigmal.

Neoderostenus Girault (Type: *N. australiensis* Girault).

Propodeum plainly tricarinate, with true lateral carinæ. Antennæ 8-jointed, the club 2-jointed.

Mestocharis Foerster (Type: *M. cyclops* Foerster).

(2) Antennæ with one ring-joint, the funicle 2-jointed. Club 3-jointed, the antennæ 8-jointed, the funicle joints long; propodeum with a median carina only.

Chrysoatomoides Girault (Type: *Chrysoatomus latipennis* Girault).

(3) Antennæ with two ring-joints, the funicle 3-jointed, the ovipositor not exserted. Antennal club 2-jointed.

Propodeum without true lateral carinæ. Median carina of propodeum paired; postmarginal vein absent; second abdominal segment occupying a third of the surface; hind tibial spur large, the mandibles bidentate.

Mestocharoideus Girault (Type: *Mestocharis cyanea* Girault).

Propodeum with true lateral carinæ.

Propodeum with a median groove or sulcus with carinated margins.

Scutum with a median groove at distal third; postmarginal and stigmal veins short; second abdominal segment short, shorter than segment 7.

Apleurotropis Girault (Type: *A. viridis* Girault).

Propodeum with a median carina.

Scutum simple; median carina of propodeum bounded by sulci along each side; mandibles bidentate; second abdominal segment occupying over a third of the surface; postmarginal and stigmal veins short.

Pelorotelopsella Girault (Type: *P. genu* Girault).

Scutum with a median groove at about distal fourth; median carina of propodeum simple, the lateral carinæ, however, V-shaped, the arms pointing cephalo-laterad; mandibles tridentate; second abdominal segment only about a sixth of the surface of the abdomen; postmarginal and stigmal veins short.

Pleurotropopseus Girault (Type: *P. purpurea* Girault).

(4) Antennæ with two ring-joints, the funicle 2-jointed, the club 3-jointed.

Median carinæ of propodeum paired, diverging at apex, there each one connected along caudal margin with the lateral carina which forks at apex; second abdominal segment occupying from a half to three fourths of the surface of the abdomen; mandibles bidentate; postmarginal vein slightly longer than the stigmal, both short.

Amestocharis Girault (Type: *A. goondiensis* Girault).*

* Scutum with a complete median sulcus; axillæ advanced cephalad of scutum; propodeum very short; the abdomen broadly ovate; parapsidal furrows short, distinct; venation and antennæ as in *Amestocharis*. HORISMENOIDES new genus (type: *H. sulfureiventris* new species). The genotype is metallic purple, the legs and abdomen sulphur yellow, the wings hyaline, the body highly polished; funicle 2 purple. Nelson, N.Q.

(5) Antennæ with three ring-joints, the funicle 3-, the club 2-jointed.

Scutum without a median groove.*

Meson of propodeum bi- or tricarinate, the propodeum usually 5-carinate, its caudal margin carinate and true lateral carinæ present; second abdominal segment occupying a third of the surface; stigmal and postmarginal veins short, the former a little the longer. Hind tibial spur long and stout.

Pseudacrias (Girault Type: *P. micans* Girault).

Meson of propodeum with one carina, the propodeum strongly tricarinate; second abdominal segment occupying a fourth of the surface; postmarginal vein about twice the length of the stigmal; eyes very hairy. Ring-joints large, distinct.

Pleurotroppopsis Girault (Type: *P. maculipennis* Girault).

Scutum with a median groove at distal third or more.

Meson of propodeum bicarinate, the lateral carinæ also present, long and complete; marginal and postmarginal veins elongate.

Pleurotropomyia Girault (Type: *P. grotiusi* Girault).

Note: Compare *Clathaira* Cameron in the Elachertini.

TRIBE PEDIOBIINI.

GENUS EPACRIAS Girault.

Differing from *Paracrias* Ashmead in that the antennæ bear two ring-joints, the club 3-jointed, the funicle 2-jointed. Propodeum tricarinate.

1. EPACRIAS NIGRIVIRIDIS Girault. Female. Genotype.

Blackish metallic green, rather coarsely rugulose. Legs and antennæ concolorous, the proximal three tarsal joints whitish. Wings hyaline, the postmarginal vein much shorter than the very short stigmal. First funicle joint longest. Petiole stout, distinctly longer than wide.

Habitat: Quingilli, Queensland. Forest.

Type: No. *Hy 1658*, Queensland Museum.

GENUS ERIGLYPTOIDEUS Girault.

Like *Metacrias* Girault but the funicle joints long and slender and the postmarginal and stigmal veins long and subequal. Antennæ 9-jointed with one ring-joint, the club 2-jointed, the funicle 4-jointed. Propodeum without carinæ. Petiole short and stout.

1. ERIGLYPTOIDEUS VARICORNIS Girault. Female. Genotype.

Dark metallic green, the scutellum and propodeum aeneous, the face blue, sunken. Legs concolorous, the trochanters, tibiæ and tarsi yellowish; scape pallid at each end, the distal club joint yellowish white.

Habitat: Murray Bridge, South Australia.

Type: No. I. 1236, South Australian Museum.

PEDIOBOMYIA new genus.

Female:—Antennæ 7-jointed with one ring-joint, the club solid and ending in a spur. Scutellum simple, scutum without a trace of parapsidal furrows; postmarginal and stigmal

* ENTEDONELLA n.g. (type: *E. magnifica* Gir. & Dodd n.sp.). Propodeum with a median carina only, the carina bounded by sulci; postmarginal vein very short. The genotype is metallic purple, the scape and legs golden yellow, the body umbilicately punctate. Victoria.

veins very short; second segment of abdomen occupying half of the surface, the eighth a third of its length and next longest, conical, the petiole stout, distinct, broad and wider than long. Propodeum with a pair of median carinæ which gradually diverge distad, the lateral carinæ also present, long and complete, the spiracle minute, round. Petiole with a sulcus on each side of meson. Propodeum with a short neck.

Male:—Not known.

Type: The following species.

1. PEDIOBOMYIA DARWINI new species.

Female:—Length, 1.65 mm.

Black with a purplish tinge the wings hyaline; legs reddish brown, the coxæ concolorous with body, also the cephalic femur; scape yellowish brown, rest of antenna concolorous, the first funicle joint subelongate, as long as the club, bevelled off at tip, the other two a little shorter than the pedicel. Thorax with raised polygonal reticulation except the smooth propodeum. Abdomen densely scaly.

From one female captured by sweeping in a jungle pocket, August 31, 1913. Dedicated to Charles Darwin.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1659*, Queensland Museum, the above specimen on a tag, the head on a slide.

PEDIOBOPSIS new genus.

Female:—Like *Eriglyptus* Crawford but the ring-joint is present, the club 3-jointed, the funicle 2-jointed, the form like the Omphalini, the propodeum short, noncarinate. Parapsidal furrows entirely wanting, no trace of them. Abdomen sessile, stout, broad, a little longer than the thorax, the segments not very unequal, rather short. Scutellum simple. Stigmal vein moderate, not short nor sessile, longer than the short postmarginal. Reticulately punctate. Antennæ inserted a little below the middle of the face.

Male:—Not known.

Type: The following species.

1. PEDIOBOPSIS SPENCERI new species.

Female:—Length, 1.30 mm.

Dark purplish, opaque, the abdomen shining aeneous purplish, the wings hyaline; legs and scape reddish brown but the coxæ concolorous; rest of antenna subfuscous, both funicle joints subequal, distinctly longer than wide, slightly shorter than the pedicel; club joints longer than wide, the middle one longest, the third conical and terminating in a stout short spine. Scutellum large, with a finer sculpture than the scutum. Tarsi pale.

Described from one female captured by sweeping in jungle, July 26, 1913. Dedicated to Herbert Spencer.

Habitat: Meerawa (Cairns), Queensland.

Type: No. *Hy 1660*, Queensland Museum, the above specimen on a tag, an antenna on a slide.

URACRIAS new genus.

Female:—Antennæ 10-jointed with three ring-joints, the club 2-jointed; scutum and scutellum simple; postmarginal vein absent, the stigmal vein very short; propodeum at the meson with a median carina which forks at base and which is bounded on each side by a sulcus whose lateral margin is acute, forming carinæ, the propodeum thus tricarinate at the meson. True lateral carinæ absent but in the vicinity of the spiracle, the propodeum with a long sulcus originating at apical meson, running along the caudal margin of the segment, then across the propodeum to cephalic margin like a lateral carina then curving off laterad. A short, oblique carina at cephalic margin of propodeum a little laterad of the lateral carina at the meson. Propodeum glabrous, the thorax otherwise with coarse polygonal reticulation, the lines raised. Second abdominal segment longest, occupying about a fourth of the surface. Petiole moderate in length. Mandibles strongly bidentate.

Male:—Not known.

Type: The following species.

1. URACRIAS EXCELSUS new species.

Female:—Length, 1.20 mm.

Dark blue, the propodeum and abdomen dark metallic green, the wings hyaline, the legs dark blue except the knees, tips of tibiæ and the three proximal tarsal joints. Scape whitish along proximal half, the antennæ otherwise dark blue. Pedicel longer than any of the funicle joints of which 1 is a little the longest, distinctly longer than wide, 3 not much shorter but wider. Club conical, with a terminal nipple, the first joint largest.

Described from one female captured by sweeping in the forest, August 14, 1913.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1661,* Queensland Museum, the above specimen on a tag, the head and a fore leg on a slide.

TABLE TO THE PEDIOBIINE GENERA OF EULOPHIDÆ.

AUSTRALIA. FEMALES.

The mesoscutum is entire, the parapsidal furrows wholly absent or represented by mere *traces* of depressions caudad, not by elongate sulci nor *distinct* depressions caudad nor by grooves from either end. The abdomen is sessile or petiolate. The form is like that of the Entedonini. Rarely or never marked other than with metallic color.

Scutellum simple.

I. Antennal club solid.

Antennæ 7-jointed with one ring-joint; postmarginal and stigmal veins very short; second segment of abdomen occupying half of the surface, the petiole wider than long; scutellum simple, the propodeum with a pair of diverging median carinæ and two lateral carinæ.

Pediobomyia Girault (Type: *P. darwini* Girault).

II. Antennal club 2-jointed.

Antennæ 9-jointed with one ring-joint, the funicle 4-jointed; postmarginal and stigmal veins long and slender; propodeum without carinæ; petiole short and stout. **Eriglyptoideus** Girault (Type: *E. varicornis* Girault).

Antennæ 10-jointed with three ring-joints, the funicle 3-jointed; postmarginal vein absent, the stigmal very short; propodeum with the median carina bounded by sulci whose lateral margins are carinated; a lateral sulcus on propodeum, true lateral carinæ absent.

Uracrias Girault (Type: *U. excelsus* Girault).

III. Antennal club 3-jointed.

Antennæ 8-jointed with one ring-joint; stigmal vein not sessile, longer than the short postmarginal; segments of abdomen rather short, not much unequal, the abdomen sessile; propodeum short, noncarinate.

Pediobopsis Girault (Type: *P. spenceri* Girault).

Antennæ 9-jointed with two ring-joints; postmarginal and stigmal veins very short; petiole of abdomen longer than wide; propodeum tricarinate (median and lateral carinæ).

Epacrias Girault (Type: *E. nigriviridus* Girault).

Tribe OMPHALINI.

Genus EUDERUS Haliday.

1. EUDERUS MESTOR Walker.

Eulophus mestor Walker, 1839, p. 42.

Eulophus capio Walker, 1839, p. 44.

Euderus mestor Walker, 1846, p. 67.

Euderus mestor Walker, De Dalla Torre, 1898, p. 6.

Habitat: King George's Sound.

Genus CLOSTEROCERUS Westwood.

1. CLOSTEROCERUS SAINTPIERREI Girault. Female.

Brilliant metallic blue-green; legs and antennæ black except the dusky pale tibiæ and tarsi. Fore wings bifasciate, the first fascia leaving the apex of the marginal vein, the second around the apex of the wing and rather narrow; first fascia somewhat V-shaped, the apex of the V distad and central. In the middle of the blade a blotch which projects into the angle formed by the two areas of the first fascia.

Habitat: Nelson (Cairns), Queensland. Jungle.

Type: No. *Hy 1662*, Queensland Museum.

2. CLOSTEROCERUS MIRUS new species.

Female:—Length, 1.50 mm.

Agreeing with *saintpierrei* Girault but the tibiæ and tarsi more yellowish, the first band of the fore wing bow-shaped or slightly convex while there is a round spot in the blade a little cephalad of the middle and beneath the middle (or nearly) of the marginal vein; this is isolated. Moreover, the second or apical band disappears at caudal third or more. Antennæ 7-jointed, without a ring-joint. Whole body densely scaly. Abdomen concolorous with the thorax.

Male:—Not known.

Described from one female captured by sweeping grass and foliage in a forest (300 feet), January 23, 1913.

Habitat: Townsville, Queensland.

Type: No. *Hy 1663,* Queensland Museum, the above specimen on a slide.

3. CLOSTEROCERUS ZANGWILLI new species.

Female:—The usual length.

Metallic green, the abdomen metallic blue; legs and antennæ concolorous or black excepting tarsi and posterior tibiæ which are yellowish white. Characterized by the usual bifasciate fore wings which form an H, the fascia being joined along the midlongitudinal line; the band around the margin is nearly complete, the first stripe accented under the stigmal vein conspicuously, the stripe broad and nearly straight; no blotch in middle of the wing under venation. Antennæ compressed fusiform and usual, 8-jointed, the minute ring-joint being present. Propodeum without a median carina. The wing pattern is more sooty than usual. Mandibles tridentate.

Male:—Not known.

Described from one female captured by sweeping grass along a damp stream, July 7, 1913 (A. P. Dodd). Dedicated to Israel Zangwill for his tragedy The War God.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1664,* Queensland Museum, the above specimen on a slide (with the type of *C. mirus* Girault).

In *C. mirus,* the minute ring-joint is also present and so with all of the species but as it fits into a cavity at the base of the first funicle joint it usually is not visible.

DIAGNOSIS OF THE AUSTRALIAN SPECIES OF *CLOSTEROCERUS* WESTWOOD.

I. Fore wings with two isolated fasciæ and a blotch.

First band of fore wing >-shaped, a central blotch projecting distad into the space between the two arms of the band.

Brilliant metallic blue-green; legs concolorous except the dusky pale tibiæ and tarsi. *saintpierrei* Girault.

First band of fore wing bow-shaped or only slightly convexed, the blotch proximad of it isolated.

Brilliant metallic blue-green, the tibiæ and tarsi yellow. *mirus* Girault.

II. Fore wings with two fasciæ which are joined along the middle of the blade, forming an H; no blotch.

Metallic green, the abdomen blue; tarsi and hind tibiæ yellowish white; proximal fascia of fore wing accented under the stigmal vein, broad, nearly straight.

zangwilli Girault.

GENUS ZAOMMOMYIA Ashmead.*

1. ZAOMMOMYIA OCULATA Girault. Female.

Dark metallic blue-green, the propodeum and part of axillæ reddish yellow, also the abdomen except basal fourth; venter of body yellowish brown, also the legs, which are, however, paler distad of the femora. An obscure stained area under the distal half of marginal vein on the fore wing. Antennæ 8-jointed, the club 3-jointed, the third joint terminating in a long spinelike projection. Second funicle joint longer than the first.

Habitat: Nelson (Cairns), Queensland. Jungle.

Type: No. *Hy 1664*, Queensland Museum.

A second female was captured in a jungle pocket July 10, 1913.

2. ZAOMMOMYIELLA SAINTPIERREI new species.

Female:—Length, 1.35 mm.

Orange yellow, the head deep metallic blue, the base of abdomen rather narrowly, except at meson, metallic purplish, the abdomen more yellowish, less reddish than the thorax. Wings hyaline. Scape yellow, rest of antenna black, the pedicel elongate, about twice the length of the first funicle joint, much longer than the second which is longer than the first yet only about a half longer than wide. Mandibles tridentate. Club acuminate, the terminal seta of the third joint long. Scutum punctate.

Male:—Not known.

Described from one female captured by sweeping in a jungle pocket, July 30, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1665*, Queensland Museum, the above specimen on a tag, the head on a slide with the type appendages of *Cirrospilomella fasciatus*.

3. ZAOMMOMYIELLA ABNORMIS new species.

Female:—Length, 1.35 mm. Abdomen slender, conical, longer than the thorax.

Brilliant metallic blue, the slender abdomen coppery, blue at base, the propodeum, all of legs and a short abdominal petiole reddish brown, the tibiæ and tarsi white. Antennæ black. Fore wings with a large brownish blotch appended from the stigmal vein, filling the blade nearly to each margin and much of it under the distal third of marginal vein. Propodeum with some irregular depressions, washed with blue mesad. Thorax polygonally scaly. Parapsidal furrows complete. Mandibles tridentate. Oral area narrowly yellow. Antennæ inserted not far from the clypeus; distal club joint with a long, stout seta, nearly as long as itself, the first joint longest; funicle 1 globular, distinctly shorter than 2 which is distinctly longer than wide, subequal to club joint 1. Postmarginal vein longer than the stigmal.

Male:—Not known.

Described from one female captured by sweeping edge of jungle (A. P. Dodd), September 16, 1913.

Habitat: Kuranda, Queensland.

Type: No. *Hy 1666*, Queensland Museum, the above specimen on a tag.

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* ZAOMMOMYIELLA new genus (type: *Zaommomyiella oculata* Girault). The funicle is but 2-jointed; in *Zaommomyia* it is 3-jointed.

SECODES new genus.

1. SECODES CAPENSIS Girault. Female. Genotype.

Dark metallic green, the wings hyaline; knees and tibiæ whitish; thorax scaly; ovipositor exserted for half the length of the abdomen, the latter brownish, the ovipositor valves black; cephalic and caudal margins of propodeum carinated and meeting at the short meson. Club with a small nipple, the pedicel scaly, longer than the funicle joints; antennæ black. Mandibles tridentate.

A second specimen has been seen.

Habitat: Capeville (Pentland), Queensland.

Type: No. *Hy 1667*, Queensland Museum.

2. SECODES SUMNERI Girault. Female.

The same as the preceding but the ovipositor not exserted, the propodeum with a short median carina, the legs and antennæ concolorous (excepting two proximal tarsal joints); abdomen long, conic ovate and concolorous.

Habitat: Lawson, New South Wales. Forest.

Type: No. *I. 1235*, South Australian Museum, Adelaide.

GENUS OMPHALOMORPHA Girault.

This genus differs from *Hubbardiella* Ashmead in having the parapsidal furrows complete, the postmarginal vein well developed, longer than the stigmal, the funicle joints wider than long, the antennæ 11-jointed with two ring-joints, the club 3-jointed.

1. OMPHALOMORPHA VIRIDIS Girault. Female.

Dark metallic green; sides of cephalic tibiæ, knees and tarsi pale yellow; wings hyaline, nearly naked; antennæ black, pedicel longer than any of the funicle joints, the first of the latter shortest.

Habitat: Nelson (Cairns), Queensland. Forest ?

Type: No. Hy 1668, Queensland Museum.

2. OMPHALOMORPHA REPERCUSSA new species.

Female:—Length, 1.25 mm.

Dark blue, the tarsi white except distal joint; wings subhyaline; first funicle joint longest, distinctly longer than wide, joint 4 shortest, a little wider than long; club ovate, with a distinct terminal spine; pedicel a little shorter than funicle 1; mandibles tridentate; postmarginal vein a little longer than the stigmal. Hind tibial spur single, not small. Propodeum with a short median carina and no others, the spiracle small, oval. Thorax (except the more finely sculptured propodeum) densely, finely, reticulately, punctate. Antennæ blue.

Male:—Not known.

Described from two females captured by sweeping in forest, November 6, 1912.

Habitat: Ayr, Queensland.

Type: No. *Hy 1669*, Queensland Museum, one of the above specimens on a tag, the head and a hind leg on a slide.

GENUS RHICNOPELTELLA Girault.

Antennæ capitate, 11-jointed, three ring-, funicle- and club-joints, the club much wider than the funicle, the joints of the latter transverse. Postmarginal vein shorter than the stigmal,* the marginal not half the length of the submarginal. Parapsidal furrows complete, the scutellum simple. Abdomen rounded oval, depressed, not as long as the thorax but wider. Male about the same.

1. RHICNOPELTELLA IMMACULATIPENNIS Girault. Female. Genotype.

Dark metallic aeneous green; club, tarsi, knees, most of cephalic tibiæ, tips of other tibiæ, brown. Distal club joint shortest of the club, shorter than the distal funicle joint which is somewhat over half the length of the pedicel.

Habitat: Brisbane, Queensland. Forest.

Type: No. *Hy 1202*, Queensland Museum.

2. RHICNOPELTELLA SPLENDORIFERELLA Girault. Female, male.

Brilliant metallic green; distal half or more of hind tibiæ white; fore wing with a stained rounded area under the apex of stigmal vein and beneath most of the marginal. The male is more brassy, the vertex metallic rosaceous.

Habitat: Brisbane, Queensland. Forest.

Types: No. *Hy 1203*, Queensland Museum.

3. RHICNOPELTELLA VIRIDIS Girault. Female, male.

Brilliant metallic green tinged with bluish, the legs except coxæ, deep lemon yellow; wings hyaline; a peltate yellowish spot in centre of abdomen at base. Male about the same.

Habitat: Brisbane, Queensland. Forest.

Type: No. *Hy 1670*, Queensland Museum.

4. RHICNOPELTELLA CONSOBRINUS Girault. Female.

Like *immaculatipennis* but smaller and the thorax bright metallic green; distal funicle joint only about a fourth the length of the pedicel.

Habitat: Nelson, Queensland. Forest.

Type: No. *Hy 1671*, Queensland Museum.

5. RHICNOPELTELLA RETICULATA Girault. Female, male.

Like *immaculatipennis* but the two distal funicle joints of the antennæ are large and subquadrate, each as long as the pedicel, the last funicle joint more than twice the size of the last club joint. Outer half of cephalic tibia yellowish. Male the same but the antennæ with four ring-joints, the two funicle joints transverse.

Habitat: Murray Bridge, South Australia.

Type: No. *I. 1237*, South Australian Museum, Adelaide.

* Sometimes as long as or a little longer than the stigmal.

6. RHICNOPELTELLA FILIA Girault. Female.

Closest to *splendoriferella* but dark blue-green, the wings hyaline, the antennæ concolorous. Distal funicle joint not more than half the length of the pedicel.

Habitat: New South Wales (Mt. Kosciusko).

Type: No. *I. 1341,* South Australian Museum, Adelaide.

7. RHICNOPELTELLA PURPUREA new species

Female:—Length, 1.10 mm.

Metallic purple but otherwise like the other species; knees, cephalic tibiæ and all tarsi pale yellowish; antennæ wholly black except the club, the three ring- and funicle joints which are greyish; distal two funicle joints alike, the first joint of the funicle much like the ring-joints; distal funicle joint distinctly shorter than the distal club joint. Pedicel as long as the funicle, the scape black. Distal funicle joint not more than a fifth the length of the large pedicel. Mandibles bidentate.

Male:—Not known.

Described from one female captured by sweeping in the forest along the banks of Cape River, December 27, 1912.

Habitat: Capeville (Pentland), Queensland.

Type: No. *Hy 1672,* Queensland Museum, the above specimen on a tag, the head on a slide.

8. RHICNOPELTELLA FLAVIPES new species.

Female:—Length, 1.70 mm.

Characterised by being dark aeneous green, the abdomen dark, the legs (except coxæ) lemon yellow; scape all concolorous; tegula lemon yellow; three ring-joints but the first funicle joint ring-like but wider than the ring-joints, the pedicel rather distinctly longer than the distal funicle joint which is plainly wider than long. Mandibles bidentate.

Male:—Not known.

Described from one female captured by sweeping in forest, August 30, 1913.

Habitat: Nelson, Queensland.

Type: No. *Hy 1673.* Queensland Museum, the above specimen on a tag, the head on a slide with the type of *Elachertetrastichus aeneipes* Girault.

DIAGNOSIS OF THE AUSTRALIAN SPECIES OF *RHICNOPELTELLA* GIRAULT.

1. Brilliant metallic green.

Legs all deep yellow except the concolorous coxæ; wings hyaline; a peltate yellowish spot in centre of abdomen at base. *viridis* Girault.

Legs concolorous except distal half or more of hind tibia and the tarsi which are whitish; fore wings with a slightly infuscated area under the apex of stigmal and much of the marginal vein. *splendoriferella* Girault.

2. Dark metallic aeneous green, the legs mostly concolorous, the thorax sometimes bright green. Legs concolorous or mostly so.
   Distal joint of funicle plainly shorter than the pedicel.
      Distal funicle joint somewhat over half the length of the pedicel; large. *immaculatipennis* Girault.
      Distal funicle joint only about a fourth the length of the pedicel; thorax bright green; small. *consobrinus* Girault.
   Distal joint of funicle as long as the pedicel and more than twice the size of the third club joint. Outer half of cephalic tibiæ yellowish. *reticulata* Girault.
   Legs lemon yellow except coxæ. *flavipes* Girault.
3. Dark metallic purple or blue.
   Dark blue-green, the wings hyaline, the antennæ concolorous; cephalic tibiæ, the knees and the tarsi pallid dusky; distal funicle joint not more than half the length of the pedicel. *filia* Girault.
   Metallic purple; knees, cephalic tibiæ and all tarsi pale yellow; club greyish; distal funicle joint distinctly shorter than the distal club joint and not more than a fifth the length of the large pedicel. *purpurea* Girault.

Genus ACHRYSOCHARIS Girault.

Differs from *Closterocerus* Westwood in having filiform antennæ; funicle 2-jointed, club 3-jointed; wings usually hyaline. Brilliant metallic green and yellow.

1. ACHRYSOCHARIS MAGNIFICA Girault. Female. Genotype.
See table.
Habitat: Nelson (Cairns), Queensland. Forest.
Type: No. *Hy 1674*, Queensland Museum.

2. ACHRYSOCHARIS PULCHRA Girault. Female.
See table.
Habitat: Nelson (Cairns), Queensland. Forest.
Type: No. *Hy 1675*, Queensland Museum.

3. ACHRYSOCHARIS GRANDIS Girault. Female.
See table.
Habitat: Nelson (Cairns), Queensland. Forest.
Type: No. *Hy 1676*, Queensland Museum.

4. ACHRYSOCHARIS MACULATIPENNIS Girault. Female.
See table.
Habitat: Nelson (Cairns), Queensland. Forest.
Type: No. *Hy 1677*, Queensland Museum.

5. ACHRYSOCHARIS BIFASCIATUS Girault. Female.
See table.
Habitat: Nelson (Cairns), Queensland. Jungle.
Type: No. *Hy 1678*, Queensland Museum.

6. ACHRYSOCHARIS LEIBNITZI Girault. Female.

See table.

Habitat: Mount Tambourine, Queensland. Jungle.

Type: No. *I. 1342*, South Australian Museum, Adelaide.

7. ACHRYSOCHARIS TRIFASCIATUS new species.

Female:—Length, 1.30 mm.

Like *bifasciatus* Girault but differing in that of the thorax only the whole of scutum is faintly washed with metallic green and there are three distinct black stripes across the abdomen at about the middle portion and two rather large dusky spots at sides of base (dorsad); also median line of scutellum from base is slightly metallic and each axilla at cephalic end and the mesal margin of each parapside; propodeum with a number of dark areas; the blotch on the fore wing is more distinct but from the distal part of the marginal vein in both species and a cross-stripe. The abdominal stripes are farther apart and characteristic. The same otherwise.

Male:—Not known.

Described from one female captured by sweeping grass along a forest streamlet, August 7, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1679*, Queensland Museum, the above specimen on a slide.

8. ACHRYSOCHARIS CLARISCUTELLUM new species.

Female:—Length, 1.15 mm.

Like *maculatipennis* but the scutellum very highly polished yet still finely scaly (through a lens appearing smooth and brilliantly polished; mesad it is nearly without fine sculpture); and the antennæ are black, the first funicle joint not small and globular but plainly longer than wide while the three club joints are all shortened; pedicel longest of the flagellum, the distal funicle joint next longest. Proximal half of scape white. Like *leibnitzi* except that the scutellum is polished and the mandibles with only two distinct, acute, equal teeth, the third subobsolete, very much shorter than the others and barely indicated; also the club joints are shortened.

Male:—Not known.

Described from one female captured by sweeping forest growths along the summit of the second coast range of mountains (1,500 feet), May 21, 1912.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1680*, Queensland Museum, the above specimen on a slide.

9. ACHRYSOCHARIS BREVICORNIS new species.

Female:—Length, 1.15 mm.

Like *maculatipennis* except that the wings are hyaline, the hind femur distinctly concolorous, the hind knees, all of other legs except coxæ, white; antennæ black except proximal half or less of scape, the pedicel no longer than the funicle joints which are short, the first subquadrate, the second globular and a little shorter. Scutellum with the usual sculpture. Mandibles as in *clariscutellum*.

Male:—Not known.

Described from one female captured by sweeping in forest, August 21, 1913.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1681,* Queensland Museum, the above specimen on a slide.

10. ACHRYSOCHARIS FOERSTERI new species.

Female:—Length, 1.00 mm.

Similar to *brevicornis* Girault but smaller, the antennæ more slender, the second funicle joint distinctly longer than the first, distinctly longer than wide, a little longer than each of the three club joints, the first funicle joint barely longer than wide, subequal to the pedicel (in *brevicornis* the club joints are a little wider than long, the third a little longer than wide, conical); also differing from *brevicornis* in that the hind wings are much slenderer and acutely pointed, the longest posterior marginal cilia as long as the greatest width of the blade (less than third in *brevicornis*). Mandibles tridentate. Wings hyaline. Hind tibiæ more or less dusky below knees.

Male:—Not known.

Described from two females captured April 26, 1913 among undergrowth and June 29, 1913 by sweeping herbage respectively (H. Hacker). Dedicated to Arnold Foerster.

Habitat: Brisbane, Queensland.

Type: No. *Hy 1682,* Queensland Museum, one of the above specimens on a slide to itself.

11. ACHRYSOCHARIS NIGRIPES new species.

Male:—Length, 1.20 mm.

Like *brevicornis* but the legs all concolorous except knees, tips of tibiæ and tarsi; also the posterior marginal cilia of hind wings are longer, the hind wings somewhat narrower but obtuse at apex, both funicle joints plainly longer than wide, the first longer, the first two club joints more or less quadrate. Mandibles and scape not seen. Wings hyaline.

Female:—Not known.

Described from a male reared in connection with a coccid, June 6, 1913 (H. Hacker).

Habitat: Brisbane, Queensland.

Type: No. *Hy 1683,* Queensland Museum, the above specimen on a slide.

DIAGNOSIS OF THE SPECIES OF *ACHRYSOCHARIS* GIRAULT.

AUSTRALIA.

I. Body (excluding appendages) wholly metallic green.
Fore wings hyaline, the legs usually white except hind legs.
First funicle joint subquadrate the second globular and a little shorter.
brevicornis Girault.

Second funicle joint distinctly longer than wide, longer than the first.
foersteri Girault.

The same as *brevicornis* but all legs concolorous except knees, tips of tibiæ and tarsi; both funicle joints plainly longer than wide. *nigripes* Girault.

Fore wings with a substigmal blotch.

Legs white, excepting coxæ; fore wings with a half complete fascia from the stigmal knob; antennæ black. *leibnitzi* Girault.

Legs white excepting coxæ but the hind femur more or less dusky; fore wings with a subelliptical stained area about the stigmal knob; antennæ dusky yellowish. *maculatipennis* Girault.

The same but scutellum with a highly polished appearance; antennæ black; club joints shortened. *clariscutellum* Girault.

II. Body (excluding appendages) mostly yellow, marked with deep metallic green.

Thorax wholly metallic green.

Abdomen pale cadmium yellow, at extreme tip more or less metallic greenish and also across base; a round greenish spot at each side of abdomen, somewhat distad of [illegible] hyaline; lower face yellow. *grandis* Girault.

Thorax not wholly metallic green but with much yellow.

Fore wings hyaline.

Pale cadmium yellow; head except lower face, pronotum, mesonotum except latero-caudal halves of each parapside, base and tip of abdomen, propodeum except laterad, a spot on each side of abdomen about the middle, cephalic half of axilla and a narrow line down proximal two thirds of scutellum, metallic green. *magnifica* Girault.

The same but the metallic green line down the scutellum much broader and ovate in shape. *pulchra* Girault.

Fore wings with an obscure but broad clouded stripe across from the stigmal vein.

Golden yellow; pronotum, cephalic half of scutum and apex of each parapside, metallic green; two stripes across abdomen about middle, propodeum, spot in centre of scutellum, one across apex of axilla and another on axilla caudad of middle, dusky or dusky black. *bifasciatus* Girault.

The same; whole of scutum faintly metallic green; three stripes across abdomen about middle. *trifasciatus* Girault.

Genus GYROLASELLA Girault.*

Differs from *Closterocerus* Westwood in bearing two ring-joints and two grooved lines on the scutellum, the pedicel not compressed, the flagellum stout but not greatly flattened.

1. GYROLASELLA FASCIATUS Girault. Female. Genotype.

Honey yellow; the abdomen with about eight cross-stripes of metallic green and black, the seventh consisting only of two spots, one on each side of the meson; scutum metallic green except lateral margins and most of scutellum within the grooves, the parapsides mesad and apex of axillæ; also distal apex of propodeum; ocelli in green spots. Wings hyaline, the legs dusky yellowish.

Habitat: Brisbane, Queensland.

Type: No. *Hy 1684*, Queensland Museum.

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* This genus belongs to the Elachertini, allied with *Atoposoma* Masi.

2. GYROLASELLA CONSOBRINUS Girault. Female.

The same but pale greenish yellow, the abdominal stripes denser and confluent at meson, laterad turning cephalad like a foot.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1685,* Queensland Museum.

3. GYROLASELLA SPECIOSISSIMA Girault. Female.

Like *consobrinus* but the postscutellum has a line of green down all of the meson, the fore wings bear a fuscous spot from the stigmal knob; the footlike cephalic projections laterad of the abdominal stripes are thicker, line 7 is complete and there is a dumbbell-shaped area at the meson distad of stripe 6.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1686,* Queensland Museum.

4. GYROLASELLA SPECIOSA Girault. Female.

Lemon yellow; inner margin of parapside, median line of scutellum to distal fifth, the same of scutum nearly centrally, the cephalic end with a line across it, a stripe across cephalic propodeum, cephalic margin of scutum narrowly, two short transverse lines in centre of abdomen and opposite to them on each side, three spots in a line longitudinally, metallic green. Wings hyaline.

Habitat: Capeville (Pentland), Queensland.

Type: No. *Hy 1687,* Queensland Museum.

5. GYROLASELLA LINEATA Girault. Female.

See table.

Habitat: Mount Tambourine, Queensland.

Type: No. *I. 1238,* South Australian Museum, Adelaide.

DIAGNOSIS OF THE SPECIES OF *GYROLASELLA* GIRAULT.*

AUSTRALIA.

Fore wings hyaline.

Abdomen with more than three cross-stripes.

Scutum with much more than the median line metallic green.

Honey yellow; abdomen with about eight cross-stripes, the seventh consisting of two spots on each side of the meson, the stripes isolated from each other and straight. Scutellum metallic green between the grooves. *fasciatus* Girault.

Pale greenish yellow and the same but the cross-stripes of abdomen confluent at meson, laterad turning cephalad like a foot. *consobrinus* Girault.

Scutum with only part of median line green.

Honey yellow, the abdomen with many cross-stripes which are narrowly confluent at meson; median line of scutum caudad, the same of scutellum to distal fifth and a short transverse dash on each side of meson just cephalad of median green line of scutum, green. *lineata* Girault.

* For other species, see pp. 262-264.

Abdomen with not more than three cross-stripes; scutum with median line metallic green at middle, the rest yellow.

Lemon yellow; inner margin of parapside, median line of scutellum to distal fifth, the same of scutum nearly centrally, the cephalic end with a line across it and two short transverse lines in centre of abdomen and opposite them, on each side, three spots in a line longitudinally, metallic green. *speciosa* Girault.

Fore wings with a substigmal spot.

Like *consobrinus* but the postscutellum is green down all of the median line and the footlike lateral projections of the abdominal stripes are thicker, stripe 7 is complete and there is a dumbbell-shaped area at the meson distad of stripe 6.

speciosissima Girault.

GENUS ACHRYSOCHAROIDES Girault.

Similar to *Gyrolasella* Girault but the postmarginal vein longer than the stigmal, the scutellum with a rather conspicuous fovea on each side of the median line, the funicle 3-jointed, the club 2-jointed.

1. ACHRYSOCHAROIDES SARCOPHAGUS Girault. Female. Genotype.

Chrysocharis sarcophagus Girault.

Bright metallic green, tinged with coppery and purple, the wings hyaline; legs white except coxæ; antennæ black, the scape dusky; funicle joints cylindrical ovate, longer than the pedicel, the first somewhat the longest.

Habitat: Nelson (Cairns), Queensland. Forest.

Type: No. *Hy 1688,* Queensland Museum.

BRACHYCHRYSOCHARELLA new genus.

Female:—Head rounded, the mandibles bidentate, the antennæ inserted somewhat below the middle of the face, short and strongly clavate somewhat as in *Rhicnopeltella* but the pedicel very much longer than the funicle and there are only nine joints, two ring-joints, two funicle joints, and a 3-jointed club, the latter much swollen and ovate. Club not terminating in a seta. Otherwise as in *Rhicnopeltella* except that the marginal fringes of the fore wing are a little longer than usual. Hind tibiæ with one spur.

Male:—Not known.

Type: The following species.

1. BRACHYCHRYSOCHARELLA DUBIA new species.*

Female:—Length, 1 mm.

Dark metallic aeneous green, the wings hyaline; coxæ and the hind femur concolorous, each of the legs pallid; antennæ pallid dusky. Thorax finely scaly.

Described from two females captured from the foliage of *Eucalyptus* in forest, November 9, 1911.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1639,* Queensland Museum, the above specimens on a slide.

The stout abdomen hides the ovipositor so that I am not sure they are females; there are two funicle joints.

* For other species, see p. 170.

GENUS ACHRYSOCHARELLOIDEA Girault.

Differing from *Gyrolasella* Girault in that the club of the antennæ is 4-jointed, the last joint minute, itself terminating in a seta; also the postmarginal vein is longer than the stigmal. Antennæ 10-jointed, the funicle cylindrical.

1. ACHRYSOCHARELLOIDEA PAX Girault. Female. Genotype.

Metallic green and punctate, the wings hyaline; excepting coxæ and base of femora, the legs pale yellow; excepting the pale yellow base of scape, the antennæ black. Club joints a little wider than long, the two funicle joints longest of the flagellum.

Habitat: Sydney, New South Wales.

Type: No. *I. 1349*, South Australian Museum, Adelaide.

GENUS CHRYSOCHARELLA Girault.

Differs from *Achrysocharoides* Girault in having the scutellum simple, the funicle 1-jointed, the club 4-jointed; the stigmal vein is sometimes slightly enlarged, the postmarginal more or less equal to it. Mandibles bidentate. Club somewhat compressed, the scape longer than the flagellum which is short and clavate. Pedicel not compressed. (Type re-examined.)

1. CHRYSOCHARELLA PULCHRA Girault. Female. Genotype.

Metallic aeneous green and scaly, the propodeum smooth but not glabrous; a small obscure stained area in the fore wing from the stigmal knob; legs (except articulations and tarsi) and the antennæ black. Club joints moniliform, the funicle joints barely longer than wide.

Habitat: Hughenden, Queensland. Forest-downs.

Type: No. *Hy 1690*, Queensland Museum.

2. CHRYSOCHARELLA AENEA new species.

Female:—Length, 1.05 mm.

Dark aeneous green, the wings hyaline; thorax very finely, densely scaly, somewhat opaque. Coxæ concolorous, also the femora, the knees, distal parts of tibiæ and the tarsi whitish. Antennæ sooty black, the proximal two thirds of the scape white.

Described from one female captured by sweeping the forest-downs, July 14, 1913.

Habitat: Hughenden, Queensland.

Type: No. *Hy 1691*, Queensland Museum, the above specimen on a slide.

3. CHRYSOCHARELLA CONSOBRINUS new species.

Female:—Length, 1.30 mm.

Very similar to *aenea* but more robust, the postmarginal vein as long as the stigmal, the first two pairs of legs more yellowish, the scape has the distal half blackish, the pedicel is longer, the antennal joints stouter.

Male:—Not known.

Described from four females reared from a lot of miscellaneous galls on the foliage of *Eucalyptus*, forest, September 18, 1912.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1692*, Queensland Museum, two of the foregoing females on a slide.

4. CHRYSOCHARELLA FASCIATIPENNIS new species.

Female:—Length, 1.05 mm.

Dark metallic green, the abdomen dark blue, the coxæ concolorous with thorax, the legs silvery white, except hind femora and tibiæ between the ends, distal tarsal joint at extreme tip, other tibiæ below knee and front femora along upper edge. Antennæ black, the pedicel about twice the length of the funicle joint. Mandibles bidentate. Postmarginal vein not quite as long as the stigmal, the fore wing with a rather broad sooty black stripe across it from the distal part of marginal vein (originating against the whole stigmal, the stripe fading somewhat caudad). Parapsidal furrows indicated only cephalad. Spiracle with a boomerang-shaped sulcus over it.

Male:—Not known.

Described from one female captured by sweeping in forest, August 5, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1693*, Queensland Museum, the above specimen on a slide.

GENUS BRACHYCHRYSOCHARELLA Girault.

Female:—Like *Rhicnopeltella* Girault but there are only four small (ring ?) joints between the funicle and the club, the antennæ short, strongly clavate and 9-jointed. Two ring-, two funicle joints, the latter barely longer than the ring-joints.

Male:—Not known.

Type: As indicated on p. 168.

2. BRACHYCHRYSOCHARELLA HELENA new species.

Female:—Length, 1.45 mm.

Brilliant metallic green and scaly, the wings hyaline, the antennæ and legs intense lemon yellow.

Described from one female found among herbage, May 10, 1913 (H. Hacker).

Habitat: Brisbane, Queensland.

Type: No. *Hy 1694*, Queensland Museum, the above specimen on a slide.

3. BRACHYCHRYSOCHARELLA GLOBA new species.

Female:—Length, 0.75 mm. Small and stout, the abdomen globular.

Dark aeneous green, the wings hyaline, the legs concolorous excepting bases and tips of first two pairs of femora, the knees and proximal four tarsal joints and all tibiæ. Pedicel concolorous, the rest of antenna white washed with dusky (the second ring- and two funicle joints dark like the pedicel). Mandibles bidentate. Distal funicle joint twice the size of the first but much shorter than the pedicel. Thorax densely scaly.

Male:—Not known.

Described from one female captured by sweeping in forest, August 27, 1913.

Habitat: Nelson, Queensland.

Type: No. *Hy 1695*, Queensland Museum, the above specimen on a tag, the head on a slide.

PSEUDOCHRYSOCHARIS new genus.

Female:—Like *Chrysocharis* Foerster but the club 3-jointed, the third joint terminating in a seta, the antennæ 9-jointed with one ring-joint; postmarginal vein a little longer than the stigmal; scutellum simple; club narrower than the funicle; parapsidal furrows obscure. Propodeum very short at meson. Mandibles tridentate, the inner tooth small.

Male:—Unknown.

Type: The following species.

1. PSEUDOCHRYSOCHARIS SPECIOSUS new species.

Female:—Length, 1.00 mm.

Like *Achrysocharis magnifica* Girault but the antennæ and legs white; funicle joints stout, only a little longer than wide, oval. Club joints cylindrical, not long, yet distinctly longer than wide.

Described from one female captured February 18, 1913, by sweeping forest along a public road.

Habitat: Ripple Creek (Ingham), Queensland.

Type: No. *Hy 1696*, Queensland Museum, the above specimen on a tag, the head on a slide.

ACHRYSOCHARELLA new genus.

Female:—Like *Achrysocharoides* but the club 3-jointed, the postmarginal vein not as long as the stigmal, the scutellum simple. The two funicle joints longer than wide, cylindrical, the pedicel still longer. Funicle 2-jointed.

Male:—Not known.

1. ACHRYSOCHARELLA DUBIA new species. Genotype.

Female:—Length, 1.15 mm.

Like *Achrysocharis leibnitzi* but the antennæ pale like the legs and with two minute ring-joints; also the single fascia on the fore wing is complete but accented markedly from the stigmal vein; distal club joint dusky.

Male:—Not known.

Described from one female captured by sweeping forest, Mount Pyramid (1,500-2,500 feet), June 3, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1697*, Queensland Museum, the above specimen on a slide.

2. ACHRYSOCHARELLA AUREA new species.

Female:—Length, 1.15 mm.

Orange yellow, the scutum washed with metallic purple; a rather large, oval metallic purplish spot filling the axilla centrally from end to end; a fuscous stripe across abdomen distad of middle; tip of abdomen above dark. Scutum scaly. Several obscure fuscous markings

along the propodeum. Legs pale, the antennæ white suffused with dusky. Fore wings with a stain in the blade. Distal club joint black; funicle joints not very much longer than wide. Mandibles tridentate.

Male:—Not known.

Described from one female captured by sweeping in a jungle pocket, July 24, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1698*, Queensland Museum, the head on a slide (the body was accidentally lost).

3. ACHRYSOCHARELLA SEMIFLAVIFRONS new species.

Female:—Length, 1.10 mm.

Head and thorax bright aeneous green and reticulated, the abdomen, face below antennæ, tegula and its vicinity, golden yellow, the abdomen metallic greenish at distal third, crossed by a dusky stripe just proximad of the green and a second dusky stripe indicated just proximad of the other by a transverse dash from the edge on each side. Wings subhyaline, the postmarginal vein subequal to the stigmal. Parapsidal furrows complete, the propodeum with a short median carina (apparently two or a pair or else a broad, flat one). Legs yellow, the coxæ dark at base. Antennæ black, scape and pedicel white, black above, the pedicel a little shorter than either funicle joint. Mandibles distinctly tridentate.

From one specimen captured by sweeping in forest, April 16, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1699*, Queensland Museum, the above specimen on a slide.

4. ACHRYSOCHARELLA AENEA new species.

Female:—Length, 1.25 mm.

Running to *Nesomyia* Ashmead in the Pediobiini but the antennæ with two ring-joints, the club 3-jointed, the third joint terminating in a conical or spine-like projection; funicle 2-jointed, both joints somewhat longer than wide and only slightly shorter than the pedicel; club tapering. Propodeum smooth, faintly reticulated, non-carinate but with a boomerang-shaped sulcus over (cephalad of) and partly around the small spiracle. Abdomen sessile, ovate. Scutellum simple. Stigmal vein short, the postmarginal barely developed. Hind tibia with one spur. Fore wings with short marginal cilia. Cheeks rather short, the head usual. Parapsidal furrows obscure but at least half complete, not deep. Dark metallic purple, the abdomen at base blue-green, the wings hyaline; tibiæ yellow-brown, the tarsi pale; antennæ dusky, the scape yellowish brown. Thorax densely, reticulate-punctate, the propodeum much smoother.

Male:—Not known.

Described from one female captured by sweeping in a jungle pocket, July 21, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1700*, Queensland Museum, the above specimen on a tag, the head and a hind tibia on a slide.

5. ACHRYSOCHARELLA OLYMPUS new species.

Female:—Length, 1.25 mm.

Brilliant metallic aeneous green, the wings hyaline, the legs white except the concolorous coxæ; antennæ black, the scape yellowish white at proximal two-thirds, the two funicle joints rather long, the second the shorter, only slightly longer than the moderately long pedicel, the second ring-joint large. First club joint a little shorter than the pedicel. Mandibles tridentate. Thorax densely scaly. Parapsidal furrows complete, prominent, curved, obtuse and broad.

Male:—Not known.

Described from one female captured by sweeping in forest and slightly in jungle, June 27, 1913.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1701*, Queensland Museum, the above specimen on a tag, the head on a slide.

6. ACHRYSOCHARELLA ALBIPES new species.

Female:—Length, 0.75 mm.

Like *olympus* Girault but both funicle joints equal and subquadrate, the pedicel barely longer than them. Mandibles bidentate. Dark aeneous green. Club joints not longer than wide (so in *olympus*).

Male:—Not known.

Described from one female captured by sweeping along edges of jungle, January 5, 1913 (A. P. Dodd).

Habitat: Kuranda, Queensland.

Type: No. *Hy 1702*, Queensland Museum, the above specimen on a tag, the head on a slide.

THE AUSTRALIAN SPECIES OF *ACHRYSOCHARELLA* GIRAULT.

Fore wings hyaline.

Body, excluding appendages, wholly metallic.

Dark metallic purple, the tibiæ yellowish brown. *aenea* Girault.

Aeneous green, the legs white except coxæ.

Mandibles tridentate; funicle joints rather long; brilliant green. *olympus* Girault.

Mandibles bidentate; funicle joints subquadrate; dark green. *albipes* Girault.

Body with the lower face, abdomen and tegula golden yellow.

Aeneous green, the abdomen so at distal third; legs yellow, the coxæ dark at base above. *semiflavifrons* Girault.

Fore wings with a blotch or substigmal fascia.

Orange yellow, the scutum washed with metallic purple; legs pale; a fuscous stripe across abdomen distad of middle; fore wings with a stain in the blade. *aurea* Girault.

Dark aeneous green, the antennæ and legs pale; a complete fascia on fore wing from the stigmal vein. *dubia* Girault.

OMPHALOMOMYIA new genus.

Female:—Characterized by the 9-jointed antennæ which bear three distinct ring-joints, the club solid. Propodeum with a median carina, the scutellum simple, the parapsidal furrows complete. Hind tibial spurs single. Marginal vein a little longer than the submarginal, the latter only slightly or incompletely broken, the postmarginal absent. Mandibles tridentate. Pedicel elongate, the club with a short nipple. Thorax shagreened. Wings hyaline. More or less anomalous and with elachertine affinities. Abdomen sessile.

Male:—Not known.

Type: The following species.

1. OMPHALOMOMYIA LIVIDICAPUT new species.

Female:—Length, 1.47 mm.

Deep orange yellow the head deep blue, the parapsides washed with the same color, the abdomen (dorsad) margined all round with blackish except across base; legs concolorous with thorax. Scape white, the remainder of antennæ dusky, the pedicel suffused with yellowish, the distal or third funicle joint less than half the length of the pedicel, globular, the club more or less equal to the pedicel, the first funicle joint longest, distinctly longer than wide.

Described from one female captured from a window, January, 1912 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1703*, Queensland Museum, the above specimen on a tag, the head and a hind leg on a slide.

RHICNOPELTOMYIA new genus.

Female:—Antennæ 10-jointed with three ring-joints, the funicle 2-jointed both joints somewhat longer than wide, the club only slightly wider and with a terminal spine. Scutellum simple. Parapsidal furrows complete. Postmarginal vein subequal to the stigmal. Scutellum very long, cordate.

Male:—Not known.

Type: The following species.

1. RHICNOPELTOMYIA WASHINGTONI new species. Genotype.

Female:—Length, 1.00 mm.

Metallic green, the wings hyaline, the scape and legs white, the coxæ concolorous; flagellum black, the funicle joints slightly longer than wide, the second slightly the longest, subequal to the short pedicel. Scape dusky at tip. Thorax finely reticulately scaly, the scutellum, however, opaque, the reticulation absent or nearly, the surface glazed or frosted. Abdomen dark.

Described from one female captured by sweeping in forest along the banks of Cape River, December 24, 1912.

Habitat: Capeville (Pentland), Queensland.

Type: No. *Hy 1704*, Queensland Museum, the above specimen on a tag, the head on a slide (fragments of other antennæ present).

The species is dedicated to Booker T. Washington.

2. RHICNOPELTOMYIA DOUGLASSI new species.

Female:—Length, 1.15 mm. Slender.

The same but scutellum finely scaly, more convex, both funicle joints distinctly longer than wide, also the pedicel, the club joints somewhat shorter; scape dusky above at and near tip. Abdomen suffused with brownish. Mandibles 3-dentate, the inner tooth short, abruptly truncate. Propodeum with a lateral sulcus.

Male:—Unknown.

Described from one female captured by sweeping in forest, July. 7, 1912.

Habitat: Aloomba (Cairns), Queensland.

Type: No. *Hy 1705*, Queensland Museum, the above specimen on a tag, the head on a slide. Dedicated to Frederick Douglass.

GYROLASOMYIA new genus.

Female:—Like *Rhicnopeltella* Girault but the scutellum with two narrow long grooves near the meson, one on each side, the antennæ 9-jointed, with two ring-joints, the club enlarged, 2-jointed. Propodeum tricarinate. Postmarginal vein shorter than the short stigmal. Marginal fringes short. Grooves of scutellum slightly converging toward apex. Propodeum minutely, densely punctate, short at the meson, the lateral carinæ twice the length of the median, straight, the median forking at apex, the spiracle narrow-reniform, just mesad of the lateral carinæ which run caudo-laterad and are rather distant from the lateral margin. Second abdominal segment occupying about a fourth of the surface, the sessile abdomen conic-ovate. Mandibles tridentate, the third tooth shorter, broader and emarginate at middle of apex nearly forming two teeth. Scutellum long, overhanging the meson of the propodeum. Funicle joints large, wider than long.

Male:—Not known.

A genus easily recognized by the tricarinate propodeum, the two grooves on the scutellum which converge and which are *near* the meson and the 3-jointed funicle, the 2-jointed club.

Type: The following species.

1. GYROLASOMYIA WASHINGTONI new species.

Female:—Length, 1.10 mm.

Grass green, aeneous and metallic, the legs including cephalic coxæ, the antennæ and venation lemon yellow; wings hyaline; thorax densely, finely punctate. Pedicel stout, much longer than any of the funicle joints of which the third is much the longest, 1 and 2 subequal, twice wider than long. Proximal club joint longer of the two, the distal one acutely pointed. Antennæ short and capitate. Scape white.

Male:—Not known.

Described from one female captured by sweeping in the forest adjoining the banks of Cape River, January 8, 1913. Dedicated to the great negro, Booker T. Washington.

Habitat: Capeville (Pentland), Queensland.

Type: No. *Hy 1706*, Queensland Museum, the above specimen on a tag, the head on a slide.

EUDEROMYIA new genus.

Female:—Antennæ 7-jointed, without ring-joints, the club slender, 3-jointed; scutellum with a punctate groove down each side of the meson, somewhat over midway between it and the lateral margins; abdomen slender. Parapsidal furrows complete. Postmarginal vein barely developed. Mandibles tridentate. Club terminating in a nipple. Submarginal vein broken, much shorter than the marginal.

Male:—Not known.

Type: The following species.

1. EUDEROMYIA CARLYLEI new species.

Female:—Length, 0.80 mm.

Dark metallic green, the abdomen purple, the wings subhyaline, the tibiæ and tarsi yellowish. Marginal fringes a little longer than usual, the fore wings with a regular, complete line of discal cilia from apex of stigmal vein to apex of wing. Antennæ black, the scape white except at tip, the pedicel shorter than either of the funicle joints which are distinctly longer than wide, the club joints nearly as long. Fore wings with about a dozen lines of discal ciliation across the widest portion. Abdomen longer than thorax, the latter finely scaly.

Described from one female captured by sweeping in forest, October 9, 1912.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1707,* Queensland Museum, the above specimen on a slide.

The species is dedicated to Thomas Carlyle.

CLOSTEROCEROIDES new genus.

Female:—Like *Closterocerus* Westwood but the postmarginal and stigmal veins long, the former the longer, the antennæ 9-jointed with two short ring-joints, the funicle 4-jointed, the club solid, long, the flagellum fusiform. Propodeum with an abbreviated median carina at base. Mandibles bidentate.

Male:—Not known.

Type: The following species.

1. CLOSTEROCEROIDES TRIFASCIATIPENNIS new species.

Female:—Length, 1.26 mm.

Deep metallic green and sculptured like species of *Closterocerus*; legs and antennæ black but the tibiæ whitish before tip, the tarsi white except distal joint. Propodeum smooth or nearly. Mesothorax with two parallel dark stripes down middle to about centre of scutellum; also two parallel dark stripes across vertex (caudad) from each lateral ocellus. Fore wings with three jet black stripes across them, the first one (proximad) narrowest, from the break of the submarginal vein, the second closer to the first than to the third and from near the base of the marginal vein; the third longest and somewhat wider than the second, from under the whole of the postmarginal vein. The blade otherwise slightly, uniformly stained. Face below antennæ yellow. Fourth funicle joint longest, a little wider than long; club as long as the two preceding funicle joints, spined at apex.

Described from one female captured by sweeping in the forest, February, 1913.

Habitat: Australia—Seymour (Ingham), North Queensland.

Type: No. *Hy 1708*, Queensland Museum, the above female on a slide.

TABLE TO THE OMPHALINE GENERA OF EULOPHIDÆ.

AUSTRALIA. FEMALES.

The parapsidal furrows are complete or incomplete, always distinctly indicated (but sometimes only by long sulci or by depressions caudad) the mesonotum at least trilobed; the abdomen is sessile, rarely with a short petiole. Species usually metallic green, the propodeum short and without carinæ, the thorax usually with a scaly sculpture. Mandibles bi- or tridentate. Scutellum usually without grooves, at the most with two, the scutum without a median grooved line. Tarsi 4-jointed. Stigmal vein usually of moderate length, not sessile, the marginal vein usually of moderate length.

I. Antennæ *without* ring-joints, 7-jointed.

Scutellum with two punctate grooves; parapsidal furrows complete; marginal vein much longer than the submarginal; club 3-jointed, slender. Postmarginal vein barely developed. **Euderomyia** Girault (Type: *E. carlylei* Girault).

II. Antennæ with but *one* ring-joint.

Antennæ with the funicle 4-jointed, the club 3-jointed.

Antennæ 10-jointed; wings hyaline, almost glabrous, much of the short discal ciliation arranged in lines; postmarginal vein well developed; abdomen long, conical, longer than the rest of the body, the propodeum short, noncarinate or with only a trace of a median carina, punctate or at least sculptured. **Secodes** Girault (Type: *S. capensis* Girault).

The same but the propodeum smooth, impunctate, the discal ciliation of the fore wing dense, normal; malar space distinct.

Euderus Haliday (Type: *Entedon amplus* Walker).

Antennæ with the funicle 2-jointed, the club 3-jointed; antennæ 8-jointed.

Eyes occupying the whole side of the head, extending to the mouth.

Postmarginal vein long, the stigmal usually with a fascia from the knob. Antennæ cylindrical.

Zaommomyiella Girault (Type: *Zaommomyia oculata* Girault).

Antennæ with the funicle 2-jointed, the club 3-jointed; the antennæ 8-jointed.

Scape dilated at apex, the pedicel flat, the flagellum fusiform, flattened, the joints compact, wider than long, the third club joint terminating in a long spur. Fore wings with fasciæ. Ring-joint hidden. Postmarginal vein not well developed usually shorter than the stigmal. Mandibles tridentate. Eyes normal.

Closterocerus Westwood (Type: *C. trifasciatus* Westwood).

Scape not dilated at apex, the pedicel normal, the flagellum cylindrical, the third club joint terminating in a long spur; postmarginal vein slightly shorter than the stigmal. Wings usually hyaline.

Achrysocharis Girault (Type: *A. magnifica* Girault).

Antennæ with the funicle and club each 3-jointed. Scutum and scutellum simple.

Postmarginal vein a little longer than the stigmal; club narrower than the funicle.

Pseudochrysocharis Girault (Type: *P. speciosus* Girault).

Postmarginal vein absent. **Parachrysocharis** Girault* (Type: *P. javensis* Girault).

* Java.

II. Antennæ with *two* ring-joints.

Antennæ greatly flattened or depressed, the pedicel compressed. As in *Closterocerus* but the funicle is 4-jointed, the club solid and terminating in a long spur; stigmal and postmarginal veins long; otherwise as in *Closterocerus* but the mandibles tridentate.

Closteroceroides Girault (Type: *C. trifasciatipennis* Girault).

Antennæ very short and strongly capitate, the funicle joints transverse, barely longer than the ring-joints.

Scutellum simple.

Antennæ 9-jointed; as in *Rhicnopeltella.*

Brachychrysocharella Girault (Type: *B. dubia* Girault).

Scutellum with two narrow grooved lines near the meson, one on each side.

Antennæ 9-jointed, the club enlarged, 2-jointed.

Gyrolasomyia Girault (Type: *G. washingtoni* Girault).

Antennæ normal, rarely compressed, the pedicel always normal.

Scutellum with two grooved lines which are near the lateral margins.

Antennæ 9-jointed, the club 3-jointed, the appendage stout and short, the joints thick; postmarginal vein absent.

Gyrolasella Girault (Type: *G. fasciatus* Girault).

Antennæ 10-jointed, the club 4-jointed, the fourth joint minute and terminating in a seta; postmarginal vein longer than the slender stigmal.

Achrysocharelloidea Girault (Type: *A. pax* Girault).

Scutellum at the most with a fovea on each side, usually simple.

Antennæ with the funicle 1-jointed, the club 4-jointed. Flagellum somewhat compressed, short; funicle joint much shorter than the pedicel. Mandibles bidentate.

Chrysocharella Girault (Type: *C. pulchra* Girault).

Antennæ with the funicle 2-jointed, the club 3-jointed. Postmarginal vein shorter than the stigmal. Flagellum filiform. Club tapering.

Achrysocharella Girault (Type: *A. dubia* Girault).

Antennæ with the funicle 3-jointed, the club 2-jointed. Scutellum with a fovea on each side; postmarginal vein longer than the stigmal.

Achrysocharoides Girault (Type: *Chrysocharis sarcophagus* Girault).

Antennæ with the funicle 4-jointed, the club 3-jointed; fore wings with the discal ciliation arranged in more or less regular lines; postmarginal vein longer than the stigmal.*

Abdomen short, ovate.

Propodeum with or without a median carina; parapsidal furrows complete. Fore wings nearly naked.

Omphalomorpha Girault (Type: *O. viridis* Girault).

III. Antennæ with three ring-joints; parapsidal furrows complete.

Antennal club solid, cylindrical, the antennæ normal, the pedicel elongate, some of the funicle joints longer than wide.

* The same but wings normally ciliate, the postmarginal vein twice longer than the stigmal, longer than marginal, the stigmal long; ring-joints large, distinct. OMPHALOMORPHELLA Girault & Dodd (type: *O. auripes* new species). The genotype is bright aeneous green, the wings lightly stained, the legs golden yellow except coxæ; pedicel elongate. Hind femur compressed. Body densely shagreened, the thorax with some scattered punctures. Melbourne, Victoria.

Propodeum with a median carina; postmarginal vein absent.

Omphalomomyia Girault (Type: *O. lividicaput* Girault).

Antennal club 3-jointed, enlarged, the antennæ capitate, the funicle joints wider than long.

Propodeum without a median carina, the postmarginal vein shorter than the stigmal. **Rhicnopeltella** Girault (Type: *R. immaculatipennis* Girault).

Antennal club 3-jointed, not much enlarged, the two funicle joints somewhat longer than wide.

The same. Abdomen conic-ovate.

Rhicnopeltomyia Girault (Type: *R. washingtoni* Girault).

Tribe TETRACAMPINI.

I have not met with any genera of this tribe in Australia except the following which doubtfully belongs here. The tribe is peculiar and must resemble the Pteromalidæ in many respects. Of the tribes of Entedoninæ, this group seems closest to the Entedonini because of the minute stigmal vein and the very long marginal but the elongate body and 6-jointed funicle seem quite characteristic.

DIPARELLOMYIA new genus.

Female:—Like *Panstenon* Walker of the Pteromalidæ but the antennæ only 10-jointed with one transverse ring-joint, the club solid. Marginal vein somewhat longer than the submarginal, the postmarginal long, the stigmal short but not sessile, about a third the length of the postmarginal which is about a third the length of the marginal. Mandibles bidentate. Petiole subequal to the hind coxæ. Scutellum with a cross-suture. Propodeum pubescent from pin-punctures, with a long median carina which is delicate and paired. Segments 2 and 3 of abdomen subequal, combined occupying half of the surface, the incision between these deep across the meson. Hind tibial spurs double, stout and long, unequal, inserted *before* the tip as in the torymid genus *Perrisocentrus* Crawford nearly but the spurs nearer the tip and not so long Scutellum without grooves. Pronotum distinctly separated. Postmarginal vein not broken. Axillæ separated. Hind coxa twice the size of the others.

Male:—Not known.

This genus, were it not for the double spurs of the caudal tibia I would place within the Diparinæ of the Pteromalidæ since the abdomen is petiolate and the marginal and postmarginal veins very long. The axillæ are not advanced and the genus resembles *Euplectrus*, yet the tarsi are 5-jointed and the tibial spurs not greatly enlarged. It will not go into any of the subfamilies of the Miscogasteridæ.

Type: The following species.

1. DIPARELLOMYIA HAECKELI new species.

Female:—Length, 1.65 mm.

Metallic green, the pronotum, parapsides, distal third of abdomen, scutum and axillæ purple. Wings hyaline. Legs yellowish brown, the hind coxæ concolorous with the thorax. Mesopleurum polished, the sutures distinct. Petiole coloured like the legs. Scape cylindrical, the club with a short nipple, the first funicle joint over twice longer than wide, longest, 2-4 subequal, a third shorter, 6 distinctly longer than wide, somewhat longer than the pedicel. Thorax finely shagreened. Scape yellowish except at tip; rest of antenna black.

Male:—Not known.

Described from one female captured by sweeping in the forest, August 3, 1913. Dedicated to Ernst Haeckel.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1709*, Queensland Museum. The above specimen on a tag, the head, fore wing and hind legs on a slide.

Subfamily APHELININÆ.*

Tribe APHELININI.

Genus APHELINUS Dalman.

Fore wings with an oblique hairless line from the stigmal vein; antennæ of both sexes 6 jointed, two small funicle joints, the club 2-jointed, the distal joint longest. Ovipositor not much exserted.

Synonym: *Paraphelinus* Perkins.

The forms named *Paraphelinus* Perkins intergrade with the forms of *Aphelinus* Dalman, as the Australian species show, so that obviously there are not two genera represented by them. *Paraphelinus* must therefore fall as a true synonym of *Aphelinus*.

1. APHELINUS DIES Girault. Female.

Black, the antennæ and legs lemon yellow, the hind coxa black; wings hyaline; abdomen lemon yellow and with obscure dusky cross-stripes; discal cilia proximad of hairless line arranged in two long lines with a third short line (2-3 cilia) and six or seven times coarser than the main ciliation.

Habitat: Nelson (Cairns), Queensland. Forest.

Type: No. *Hy 1710*, Queensland Museum.

2. APHELINUS NOX new species.

Female:—Length, 1.20 mm.

Like *dies* but the distal two thirds of abdomen concolorous with rest of body, the proximal third lemon yellow; discal cilia proximad of hairless line arranged in two long lines and two or three short ones (type re-examined).

Captured by sweeping, November, 4, 1911.

Habitat: Kuranda, Queensland. Jungle.

Type: No. *Hy 1711*, Queensland Museum, the above specimen on a slide.

3. APHELINUS AUSTRALIENSIS (Girault). Female.

Paraphelinus australiensis Girault.

Deep orange yellow, immaculate; funicle 2 distinctly more than half the length of the proximal club joint. Discal ciliation very fine and short, the six lines proximad of the hairless line about twice coarser than the main ciliation. Proximal club joint about a third of the length of the distal joint.

Habitat: Nelson (Cairns), Queensland. Forest.

Type: No. *Hy 1712*, Queensland Museum.

* Elsewhere I give reasons for considering this group the same as the Tanaostigmini of the Encyrtidæ. The group must form a subfamily of the Encyrtidæ.

4. APHELINUS PAX new species.

Male:—Length, 0.70 mm.

Like *nox* Girault but the fore wings slightly dusky from base out to the end of the venation; also the hind wings are narrower, bearing only about seven lines of discal cilia (about twelve in *nox*).

Female:—Not known.

Described from one male captured by sweeping jungle growths along a streamlet in a forest, June 17, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1713*, Queensland Museum, the above specimen on a slide with the type *Prospaltella antiopa* Girault.

5. APHELINUS NIGER new species.

Female:—Length, 1.00 mm.

Like *Aphelinus mali* (Hald.) but proximad of the oblique hairless line of the fore wing there is but one line of discal cilia bounding the oblique line and complete; no cilia under the marginal vein except a row just *under* it for its entire length and a short line of about four cilia originating at the origin of the line of cilia bounding the hairless line and running more proximad, forming a sort of V-shaped ciliated line. First two funicle joints combined as long as the first club joint. Abdomen brown, lighter across base. Thorax with a dense scaly sculpture.

Male:—Not known.

Described from eight females captured by sweeping herbage, June 29, 1913 (H. Hacker); also on another slide several males and females. The males do not differ.

Habitat: Brisbane, Queensland.

Types: No. *Hy 1714*, Queensland Museum, the above slide with eight females.

6. APHELINUS HAECKELI new species.

Female:—Length, 1.05 mm.

Golden yellow, immaculate and like *australiensis* but the fore wings are broader, the body more robust and the club joints much longer, the first club joint over twice the length of the distal funicle joint.

Male:—Not known.

Described from one female captured from a window, February 17, 1913. Dedicated to Ernst Haeckel.

Habitat: Ingham, Queensland.

Type: No. *Hy 1715*, Queensland Museum, the above specimen on a slide.

7. APHELINUS GROTIUSI new species.

Female:—Length, 0.75 mm.

Almost exactly like *australiensis* but the second funicle joint is wider than long, subequal to the first, distinctly less than half the length of the first club joint which is somewhat longer than wide. Also the general colour is lemon yellow.

Male:—Not known.

Described from one female captured from a window in a building on a sugar-cane farm, December 18, 1911. Dedicated to Hugo Grotius.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1716,* Queensland Museum, the above specimen on a slide with a female of *newtoni* and a *Pterygogramma.*

8. APHELINUS DARWINI new species.

Female:—Length, 1.00 mm.

Like *grotiusi* but the funicle joints subquadrate, subequal, the fore wings much broader; no distinct median groove down thorax.

Male:—Not known.

Described from one female captured by sweeping in forest, August 28, 1913. Dedicated to Charles Darwin.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1717,* Queensland Museum, the above specimen on a slide (with several *Signiphoras*).

9. APHELINUS FUSCIPENNIS Howard.

Five females reared from a *Chionaspis* on cockatoo apple with *minutissimus*, forest, Nelson (Cairns), Queensland, December 18, 1911. Is this a native species? Compared with North American specimens; the Australian species could not be distinguished from them.

10. APHELINUS MINUTISSIMUS new species.

Female:—Length, 0.35 mm. Minute.

Pale lemon yellow, the wings hyaline, the legs and antennæ concolorous; about four lines of cilia proximad of and bordering the hairless line, these cilia hardly coarser than the main ciliation; wings narrow, shaped like those of a narrow winged species of *Gonatocerus* (about a dozen lines of discal cilia across widest part of blade); funicle joints transverse, the first club joint over twice the length of either, slightly longer than wide and about half the length of distal joint. Scutum probably with a median groove.

Male:—Not known.

Described from a single female reared from a *Chionaspis* on foliage of cockatoo apple, forest, December 18, 1911.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1718,* Queensland Museum, the above specimen on a slide.

11. APHELINUS NEWTONI new species.

Female:—Length, 0.45 mm.

The same as the preceding but somewhat larger and the fore wings are different. Thus, the fore wings are broader, more rounded (at widest portion with about sixteen lines of fine

discal ciliation) and there are 3-4 lines of cilia proximad of the hairless line, these being distinctly (about thrice) coarser than the main ciliation. Hind femur somewhat swollen. Thorax apparently with a complete median groove to end of phragma (specimen not seen out of balsam). Rich golden yellow. Antennæ about the same as with the preceding species.

Male:—Not known.

Described from one female captured from a window, March 13, 1912.

Habitat: Thursday Island, Torres Strait and Nelson, Queensland.

Type: No. *Hy 1719*, Queensland Museum, the above specimen on a slide with a female of *Alaptus newtoni* Girault.

Later, a female was found on a slide labelled "From windows of men's quarters on a sugar farm, Nelson, Qsld., December 18, 1911."

TABLE TO THE AUSTRALIAN SPECIES OF *APHELINUS* Dalman.

(Compiled from the types.)

Black species, the antennæ and legs yellow.

Abdomen all yellow except for a more or less obscure stripe across middle; cilia proximad of hairless line arranged in two long lines and a third short one. Robust. *dies* Girault.

Abdomen with the proximal third lemon yellow; cilia proximad of hairless line arranged in two long lines and two short ones. Hind wings with about 12 lines of discal cilia. *nox* Girault.

The same but the fore wings infuscated slightly along proximal half to end of venation, the proximal patch of ciliation consisting of one long line and three short ones. Hind wings with about 7 lines of discal cilia. *pax* Girault.

Black and like *mali* but cilia proximad of hairless line consisting of but one long line, which is complete and four cilia representing its second line but nearly parallel with the marginal vein. *niger* Girault.

Yellow species, the wings hyaline.

Extremely minute.

Pale lemon yellow; pedicel as long as the funicle and first club joint combined; fore wings with about 12 lines of discal cilia at the widest part. Funicle joints rings; proximal ciliation hardly coarser than the main ciliation. *minutissimus* Girault.

The same but somewhat larger, the fore wings broader bearing about 16 lines of discal cilia at widest portion and the proximal cilia distinctly (about thrice) coarser than the main ciliation. *newtoni* Girault.

Of normal size or robust; immaculate.

Second funicle joint distinctly larger than the first.

First club joint twice the length of funicle 2. *haeckeli* Girault.

First club joint plainly not twice the length of funicle 2. *australiensis* Girault.

Second funicle joint barely longer than the first, subequal to it.

Fore wings broad, bearing about 45 lines of very fine ciliation (widest portion). Funicle joints a little longer than wide; club 1 nearly half the length of 2. *darwini* Girault.

Fore wings of moderate width, bearing about 25 lines of very fine ciliation (widest portion).

Funicle joints quadrate or a little wider than long; club 1 plainly not half the length of club 2. *grotiusi* Girault.

Yellow species, the wings infuscated.

Dull honey yellow with obscure transverse stripes across abdomen; both funicle joints transverse and equal; an indefinite fuscous patch below the stigmal vein; cilia proximad of hairless line arranged in about 10 lines. *fuscipennis* Howard.

Genus PERISSOPTERUS Howard.

Fore wings with an oblique hairless line from stigmal vein; antennæ 6-jointed with two small funicle joints; ovipositor plainly exserted; fore wings with an irregular pattern of spots or lines; postscutellum acutely triangular.

A species of this genus was reared in large numbers at Nelson (Cairns), Queensland, in December, 1911, from a *Chionaspis* on the foliage of a native forest tree, but the material unfortunately was badly preserved, and I could not make out with certainty its complicated wing pattern. It is probably a native species and unknown to science.

Later better specimens were found and I am now able to describe the species. The specimens were of the same lot.

1. PERISSOPTERUS INEXPLICABILIS new species.

Female:—Length, 0.60 mm.

Brown with a (or several) row of round dots down each margin of abdomen; legs white, conspicuously spotted and banded with black; fore wings with a reticulate pattern of fuscous as in *mexicanus* Howard and *pulchellus* Howard, but there is a less number of inclosed hyaline areas and the arrangement is different; proximad of hairless line, a small patch of coarser discal cilia against origin of stigmal vein and the larger patch incloses a conic-ovate hyaline space; midway between the apex of venation and apex of wing a little cephalad of centre there are two large rounded inclosed clear spaces, their bounding fuscous ciliation forming a complete figure 8; the whole apical margin of the wing is clear, none of the fuscous bands reaching it; femora with four unequal dusky spots, the tibiæ with two (the hind tibiæ with three) encircling bands, the distal two on hind tibiæ adjacent, apparently confluent in one aspect. Proximal and distal tarsal joints in all legs dusky black. Scape white at tip and beneath; third funicle joint white toward tip, narrowing there; antennæ black.

Male:—Not known.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1720*, Queensland Museum, two females on a slide with the types of *Casca nigra*.

2. PERISSOPTERUS CAPILLATUS Howard.

Howard, 1907, p. 87.

The principal characteristics of this species are taken from its original description: Head uniformly orange yellow; mesonotum lemon yellow; metanotum darker; abdomen marked with alternating transverse bands of light yellow and honey yellow; antennæ light yellowish; legs pallid, femora dusky at tip; middle and hind tibiæ dusky at tips, and with two other

dusky spots or bands; first and fifth tarsal joints dusky. The wings are spotted with patches of dark cilia, not connected in a reticulate pattern as with *pulchellus* and *mexicanus*. Vertex reticulated; thorax smooth.

Habitat: Sydney, New South Wales.

Type: Cat. No. *10,313*, United States National Museum, Washington, D.C., U.S.A.

Host: Lepidosaphes pallens Maskell on *Xanthorrhœa*.

GENUS COCCOPHAGUS Westwood.

Fore wings without an oblique hairless line from stigmal vein; antennæ filiform, 8-jointed, the scape not especially short, the club 3-jointed; stigmal vein present, the marginal cilia of fore wing not long, the marginal vein as long or longer than the submarginal. Hind tibiæ normal.

1. COCCOPHAGUS FUNERALIS new species.

Female:—Length, 1.05 mm.

Wholly black suffused with brownish, the wings hyaline; legs and antennæ lemon yellow, the posterior coxæ and femora black; funicle joints distinctly longer than the pedicel, the first longest, nearly twice longer than wide, the third distinctly longer than any of the club joints. Thorax finely scaly, without noticeable punctures. Fore wings broad, very finely, densely ciliate. Thorax pubescent.

Male:—Not known.

Described from one female reared from coccids, June 28, 1913 (H. Hacker).

Habitat: Brisbane, Queensland.

Type: No. *Hy 1721*, Queensland Museum. The above specimen on a slide with an encyrtid and an eulophid.

GENUS PHYSCUS Howard.

Fore wings without an oblique hairless line; antennæ 7-jointed, the club 2-jointed, the first funicle joint usually shorter than second or third. Ovipositor scarcely extruded.

1. PHYSCUS NIGRICEPS new species.

Female:—Length, 1.00 mm.

Bright golden yellow, the head, the first funicle joint and the club, base of abdomen and of thorax all around and a cross-stripe across abdomen distad of the middle, black. Distal two funicle joints white, all three joints subequal, the distal club joint the longest joint of the flagellum, the proximal club joint a little shorter than the funicle joints. Wings subhyaline, densely ciliate, the marginal cilia short. Hind coxæ dusky, the legs otherwise golden yellow. Hind wings with about seven lines of discal cilia, their caudal marginal cilia thrice or more the length of the longest marginal cilia of the fore wing. Mandibles bidentate, the inner tooth broadly truncate.

Male:—Unknown.

Described from one female captured by sweeping foliage in jungle, June 7, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns) and Kuranda, Queensland.

Type: No. *Hy 1722*, Queensland Museum. The above specimen on a slide.

A second specimen of this species was captured in jungle some days later and a third in jungle at Kuranda in September.

2. PHYSCUS FUSCIVENTRIS new species.

Female:—Length, 1.00 mm.

Bright golden yellow, the abdomen, parapsides and axillæ, a large area on each side of meson of distal third or more of scutellum, sides of mesothorax centrally and pronotum narrowly, brownish black; legs pale yellow, the hind femur subfuscous above at base. Antennæ brown, the second funicle joint distinctly shorter than any of the club joints; wings hyaline. Immediate tip of abdomen pale.

Male:—Not known.

Described from one female captured by sweeping in forest, January 1, 1912 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1723*, Queensland Museum. The above specimen on a slide with miscellaneous trichogrammatids and a *Signiphora*.

Genus ENCARSIA Foerster.

Fore wings without an oblique hairless line from stigmal vein; antennæ 8-jointed, the club 2-jointed. Hind tibiæ without stiff black bristles.

1. ENCARSIA CYBELE new species.

Female:—Length, 1.10 mm.

Black, the abdomen lemon yellow, orange toward tip; across the base and down each side nearly to tip (dorsad), margined with dusky black; wings subhyaline, the legs and antennæ pale lemon yellow; all tarsi plainly 5-jointed; first funicle joint longer than the pedicel, the two club joints subequal. Mandibles minutely tridentate. Funicle cylindrical, the four joints all about equal. Fore wings uniformly ciliated discally to the break in the submarginal vein, the marginal fringes short. *A short postmarginal vein plainly present.* Proximal tarsal joints elongate.

Male:—Not known.

Described from one female captured by sweeping the jungle growth along the margins of a forest streamlet, June 17, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland. Jungle.

Type: No. *Hy 1724*, Queensland Museum. The above specimen mounted on a slide with the type head of *Philotrypesis longiventris* Girault.

On August 7, 1913, a second female was obtained by sweeping grass along a forest streamlet (doubtless edged with jungle growth).

2. ENCARSIA AURITHORAX new species.

Female:—Length, 0.90 mm.

Deep black, the thorax except the axillæ golden reddish, the scutum suffused more or less with dusky; antennæ and legs dusky yellowish, the wings hyaline and characterised by

being very finely densely ciliate over the blade, the marginal cilia moderately short. Joints 3 and 4 of funicle longest, 1 shortest yet distinctly longer than the pedicel. Fore wings slightly stained under the proximal half of marginal vein.

Male:—Not known.

Described from two females on a slide in the Queensland Museum labelled "Among undergrowth, June 26, 1913. H. Hacker."

Habitat: Brisbane, Queensland.

Type: No. *Hy 1725*, Queensland Museum. The above specimens.

3. ENCARSIA JUSTICIA new species.

Female:—Length, 0.70 mm.

Deep orange yellow, the head pale greenish yellow, the antennæ and legs pale yellow, the legs the paler; all tarsi 5-jointed. Wings hyaline. Distal club joint dusky. Thorax with a median groove running to end of phragma and crossed by a transverse groove not far from cephalic margin of scutum. First funicle joint about subequal to the pedicel, the flagellum cylindrical, the second funicle somewhat longer than joint 1, the fourth longest yet somewhat shorter than the first club joint which is the longest joint of the flagellum. Longitudinal striation of antennæ apparently absent.

Male:—Not known.

Described from one female captured by sweeping in the forest, July 9, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1726*, Queensland Museum. The above specimen on a slide.

Genus ASPIDIOTIPHAGUS Howard.

Fore wings with a long marginal fringe, without an oblique hairless line from the stigmal vein; antennæ 9-jointed, the club 3-jointed, *one ring-joint*. Stigmal vein present. The antennæ in this genus bear a very short ring-joint.

1. ASPIDIOTIPHAGUS CITRINUS (Craw).

I have specimens of this species from Babinda and Nelson, North Queensland, associated with Coccidæ on imported citrus fruits near cultivated areas and settlements.

2. ASPIDIOTIPHAGUS AUSTRALIENSIS Girault. Female.

Dusky black; a crescentic band around base of scutum, tip of abdomen, the scutellum and the head lemon yellow; legs pallid, the antennæ dusky yellow; face below antennæ dusky black. Wings infuscated as in *citrinus*. Antennal segmentation as in *citrinus* (antennæ 9-jointed with one ring-joint).

Habitat: Nelson (Cairns), Queensland. Forest.

Type: No. *Hy 1727*, Queensland Museum.

Genus PROSPALTELLA Ashmead.

Fore wings with comparatively short marginal fringes, the oblique hairless line from stigmal vein absent, the submarginal vein longer than the marginal; antennæ 8-jointed with the club 3-jointed.

1. PROSPALTELLA ANTIOPA new species.

Female:—Length, 0.55 mm.

Agreeing with the original description of *quercicola* Howard but the legs all pallid, the parapsides piceus except near caudal margin, also the scutum, the antennæ orange yellow and filiform and there is no indication of a postmarginal vein. The blade of the hind wings distad of the venation is naked excepting around each margin where a single row of discal cilia delimits the naked area; under the venation, several additional lines of cilia are present. The band across the fore wing is under the marginal vein but distad extends beyond the apex of the stigmal vein, proximad to the bend of the submarginal; it is not pronounced but dusky, its margins not well defined.

Male:—Not known.

Described from one female captured by sweeping jungle (500 feet), October 28, 1912.

Habitat: Babinda, Queensland.

Type: No. *Hy 1728,* Queensland Museum, the above specimen on a slide with the type of *Aphelinus pax* Girault.

2. PROSPALTELLA SEMINIGRICLAVUS new species.

Female:—Length, 1.00 mm.

Bright lemon yellow, the sides of the thorax and the abdomen black, the legs (pallid) and antennæ (orange) yellow, the third or distal club joint black. Fore wings hyaline but crossed by a broad, conspicuous black band (under all of the marginal vein); centre of occiput black. Distal club joint shorter than the other two, the club rather short, the third funicle joint of the three slightly longest, over twice longer than wide, the first shortest but longer than the pedicel. Hind femur black (and probably all of the coxæ).

Male:—Not known.

This magnificent species was described from a single female captured by sweeping in jungle, June 14, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1729,* Queensland Museum, the above specimen on a slide.

3. PROSPALTELLA ALBISCUTELLUM new species.

Female:—Length, 0.80 mm.

Sooty black, the scutellum contrasting, silvery white, the antennæ white, the fore wings distinctly infuscated out as far as the end of the marginal vein; legs whitish. Funicle joints subequal, a half longer than wide or nearly, each longer than the short pedicel, more or less like the three club joints. Proximal tarsal joint much the longest. Ovipositor valves exserted distinctly but shortly.

Male:—Not known.

Described from one female from the collections of the Queensland Museum on a slide labelled "Sweeping undergrowth, mostly eucalypts, June 16, 1913. H. Hacker."

Habitat: Brisbane, Queensland.

Type: No. *Hy 1730,* Queensland Museum, the above specimen.

4. PROSPALTELLA NIGRIVENTRIS new species.

Female:—Length, 0.65 mm.

Bright lemon yellow, the legs and antennæ concolorous, the pronotum and abdomen sooty black; fore wings infuscated under all of marginal vein across to caudal margin, their longest marginal cilia over a fourth the greatest wing width; first funicle joint very short but longer than wide, about half the length of the second, the third longest, somewhat shorter than any one of the next three joints which are subequal and longest of the flagellum (joints 1-3 of club, the latter not differentiated, the flagellum filiform). Pedicel short.

Male:—Not known.

Described from one female on a slide from the collections of the Queensland Museum labelled "Among undergrowth, June 26, 1913. H. Hacker."

Habitat: Brisbane, Queensland.

Type: No. *Hy 1731*, Queensland Museum, the above specimen (mounted with the type of *P. aureola*).

5. PROSPALTELLA AUREOLA new species.

Female:—Length, 0.73 mm.

Deep orange yellow, the abdomen suffused with dusky, the wings hyaline; antennæ subclavate, the first funicle joint subglobate, the second and third longer than wide but short, like the club joints, yet over twice the length of the first; distal club joint a little the longest. Wings with the discal ciliation unbroken. First funicle joint a little longer than the second.

Male:—The same but the antennæ filiform, the face pallid ventrad.

Described from a single pair on a slide with the preceding species.

Habitat: Brisbane, Queensland.

Type: No. *Hy 1732*, Queensland Museum, the above pair (mounted with the female type of *nigriventris*).

6. PROSPALTELLA AURANTII (Howard).

Adelaide, South Australia.

GENUS ABLERUS Howard.

Synonym: *Azotus* Howard.

Fore wings without an oblique hairless line from stigmal vein, their marginal cilia moderately long to short, the wings usually infuscated; ovipositor plainly extruded. Antennæ 8-jointed, the club solid, joint 3 of funicle more or less quadrate; one ring-joint. Metallic, the antennæ varicolored. When the ovipositor is mentioned, the exserted portion is meant.

1. ABLERUS MARCHALI (Howard).

Azotus marchali Howard, 1898, pp. 138, 139.

This species is unknown to me.

Habitat: Sydney, New South Wales. Paris, France.

Type: Probably in the United States National Museum, Washington, D.C., U.S.A.

Host: Parasitic upon *Aspidiotus hederæ* Vallot in Australia.

2. ABLERUS SPECIOSUS Girault. Female.

Like the North American *clisiocampæ* (Ashmead) but the pedicel is white, the club all black, the fore wings subhyaline, crossed by a subcrescentic stripe of black from the apex of the marginal vein; legs white excepting a black band across femora and tibiæ just above and below knees.

Habitat: Nelson (Cairns) and Mackay, Queensland.

Type: No. *Hy 1733*, Queensland Museum.

Host: Parasitic upon native coccids.

One female captured at Mackay, October 21, 1911, by sweeping lantana and other bushes in a field.

3. ABLERUS SEMIFUSCIPENNIS (Girault). Female.

Azotus semifuscipennis Girault.

Dark metallic blue, the legs concolorous except knees, tips of tibiæ, tarsi (first four joints), most of pedicel and scape and joints 2 and 4 of the funicle which are white. Fore wings deeply infuscated from base to apex of stigmal vein, the distal margin of the fumation darker or accented. Funicle 1 a little the longest, 3 wider than long, 2 and 4 subequal in length. Ovipositor valves exserted for a third the length of the abdomen, concolorous.

Habitat: Ingham, Queensland.

Type: No. *Hy 1734*, Queensland Museum.

4. ABLERUS SPECIOSISSIMUS (Girault). Female.

Azotus speciosissimus Girault.

Dark metallic grass green, the valves of ovipositor at tip, the parapsides except lateral end, legs (except distal tarsal joint) and most of antennæ (a spot on scape above, side of club, base of pedicel and funicle joints 1 and 3 dark, submetallic) white. Fore wings hyaline but with a very obscure, faint stain across them under the marginal vein. Funicle 2 a little the longest. Head white.

Habitat: Magnetic Island (Townsville), Queensland.

Type: No. *Hy 1735*, Queensland Museum.

5. ABLERUS NYMPHA new species.

Female:—Length, 1.00 mm., excluding ovipositor which is half the length of the abdomen.

Like *clisiocampæ* (Ashmead) but much more robust and the club is wholly black; also the infuscation of the fore wing is intense, jet black; the first joint of hind tarsi is longer. Distal half of tibiæ yellowish. Face with a transverse black spot.

Captured by sweeping in forest (2,000 feet), June, 1913.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1736*, Queensland Museum, the above specimen on a slide.

6. ABLERUS SAINTPIERREI new species.

Female:—Length, 0.85 mm., excluding ovipositor which is half the length of the abdomen.

Like *speciosus* but more robust, the wings broader and the black stripe around hind tibiæ is at apex; the fore wings, moreover, bear very short marginal cilia. Stripe of fore wing from the stigmal vein; face blue-green at ventral half.

From one female captured on a window, February 3, 1912.

Habitat: Cooktown, Queensland.

Type: No. *Hy 1737*, Queensland Museum, the above specimen on a slide.

7. ABLERUS HYALINUS new species.

Female:—Length, 1.15 mm., excluding ovipositor which is a fifth the length of the abdomen.

Differing from the preceding species in bearing nearly hyaline wings; otherwise like *speciosus* but the legs are wholly white; ovipositor valves white at tip; mesopostscutellum with a silvery lustre, the parapsides white. Closely allied with *speciosissimus* (see table). Like *speciosissimus* but the thorax with a straight, narrow silvery white band across it between the scutellum and postscutellum. Hind coxæ at proximal half concolorous. Silvery white at tip of abdomen centrally and down mesopleurum from apex of the white on the parapside. Face with a metallic wavy stripe across it through the antennæ, occiput concolorous at ventral half. The faint stripe across the fore wing in both species originates at about the distal third of the marginal vein. In *hyalinus*, the wing stripe is extremely faint. A second specimen was larger, more robust.

From one female reared from a mass of galls on *Eucalyptus*, September 3, 1912.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1738*, Queensland Museum, the above specimen on a slide.

8. ABLERUS GROTIUSI new species.

Female:—Length, 0.70 mm.

Differing from all the Australian species in having a wing pattern like the Javanese *pulchriceps* Zehntner. From that species, however, differing in being smaller, the fore wings narrower, their longest marginal cilia over half the greatest wing width (in the Javanese species less than half); in this Australian species, the wing pattern is less distinct, the spot at the distal margin of the blade is longer and extends over more of the apical margin; of the two large white spots distad of the white stigmal vein, the distal one is larger (hardly so in *pulchriceps* where both are large and subequal); the area leading proximad from the apex of the blade does not form a prong-like fuscous marking. Moreover, in *grotiusi*, the white second funicle joint is subquadrate like the third which it equals, while in *pulchriceps* it is twice the size of the black third joint and only slightly shorter than the first and fourth.

Male:—Unknown.

Described from one female captured by sweeping in forest, January 19, 1913.

Habitat: Magnetic Island (Townsville), Queensland.

Type: No. *Hy 1739*, Queensland Museum, the above specimen on a slide (mounted with three females of *A. pulchriceps* Zehntner from Java).

Respectfully dedicated to Hugo Grotius.

9. ABLERUS POINCAREI new species.

Female:—Length, 0.75 mm., excluding ovipositor valves which are black and about a third the abdomen's length.

Like *speciosus* but the femora and tibiæ are concolorous except toward tip, not distinctly ringed with the concolorous color, the stripe across the fore wing is fainter and nearly straight and the fore wings are a little narrower; the discal cilia under the marginal vein are more scattered and regular. Antennal joints somewhat shorter and stouter.

Male:—Not known.

Described from one female captured by sweeping in the forest along the banks of Cape River, January 6, 1913.

Habitat: Capeville (Pentland), Queensland.

Type: No. *Hy 1740*, Queensland Museum, the above specimen on a slide (with the type female of *Parafens argentipes* Girault).

10. ABLERUS LONGFELLOWI new species.

Female:—Length, 1.25 mm., excluding the ovipositor.

Closely resembling both *speciosus* and *saintpierrei*. From the former it may be recognized at once because the band across the fore wing from the apex of the marginal vein is incomplete, fading out before reaching the caudal margin of the blade, the femora and tibiæ are wholly black except at tip and at the knees, the fore wings are broader, more densely ciliated and the marginal cilia quite short. From *saintpierrei*, it differs distinctly in having the black femora and tibiæ, in having only three or four coarser lines of discal cilia under the marginal vein (this ciliation finer in *saintpierrei* and in about seven or eight lines), in the incomplete stripe across the fore wing and in the fact that this stripe is nearly wholly under the apex of the marginal vein (in the other species—*saintpierrei*—this stripe is somewhat narrower and is from the middle of the stigmal vein which is more colored than in *longfellowi*). Differing from all species known to me in bearing long antennæ, the first funicle joint longer than usual, nearly twice the length of the pedicel, the second thrice the length of the short third. Valves of ovipositor whitish at tip.

Male:—Unknown.

Described from one female captured by sweeping in the forest, April 18, 1912. This truly remarkable species is respectfully dedicated to Henry W. Longfellow, the poet.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1741*, Queensland Museum.

11. ABLERUS ELEGANTISSIMUS new species.

Female:—Length, 1.00 mm., excluding ovipositor.

Like *grotiusi* and *pulchriceps* in wing pattern and more like the latter but differing as follows:—The clear and naked spot under the marginal vein is smaller being much narrower and shorter, the pattern is darker and more clear; the short third funicle joint is longer, plainly longer than wide (not a little wider than long) and the extreme tip of the valves of the ovipositor are not white. Vertex along margins of eyes silvery white, also a stripe across ventral ends of eyes bordered ventrad by a black cross-stripe. May be distinguished at once from *grotiusi* in having the second funicle joint plainly longer than the third not short and subequal to it.

Male:—Not known.

Described from one female captured by sweeping in forest, August 31, 1913.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1742,* Queensland Museum, the above specimen on a slide with the type of *hyalinus.*

12. ABLERUS PAN new species.

Female:—Length, 0.65 mm., excluding exserted portion of the ovipositor.

Like *speciosissimus* but the valves of the ovipositor are wholly black.

Male:—Not known.

Described from one female captured in the forest, December 15, 1911.

Habitat: Hambledon Junction (Cairns), Queensland.

Type: No. *Hy 1743,* Queensland Museum.

13. ABLERUS BIDENTATUS new species.

Female:—Length, 0.85 mm.

Very similar to *semifuscipennis* but the mandibles bidentate, the hind wings wider and more obtuse at apex and with scattered discal cilia distad of the venation (absent in the type of *semifuscipennis*), the fore tibiæ pallid along distal half or more; the eyes are margined with ivory or silvery white.

Male:—Not known.

Described from two females one of which was reared from an aleurodid infesting the leaves of acacia, June 17, 1913 and the other captured among undergrowth, April 26, 1913 (H. Hacker).

Habitat: Brisbane, Queensland.

Type: No. *Hy 1744,* Queensland Museum, the above specimens on two slides.

TABLE TO THE AUSTRALIAN FORMS OF *ABLERUS* HOWARD.

FEMALES.

(Compiled from the types, excluding *marchali* Howard.)

I. Fore wings with a network pattern of fuscous (fuscous but broken into large clear areas).

Valves of ovipositor white at tip; second funicle joint short barely longer than the subquadrate third joint. *grotiusi* Girault.

Valves of ovipositor wholly concolorous; second funicle joint much longer than the third which is somewhat longer than wide. *elegantissimus* Girault.

II. Fore wings with or without a distinct or faint rather narrow cross-stripe.

Femora, tibiæ and most of tarsi wholly white; parapsides white.

Tip of valves of ovipositor white.

Wings hyaline, translucent. *hyalinus* Girault.

Wings with a faint but distinct, oblique brownish stripe across them from a little distad of middle of marginal vein. *speciosissimus* Girault.

Tip of valves of ovipositor black; wings as in *speciosissimus.* *pan* Girault.

Femora and tibiæ concolorous; parapsides concolorous.

Joint 1 of funicle four or more times longer than wide; valves of ovipositor white at tip; cross-stripe of fore wing plainly oblique and from end of marginal vein. Robust. *longfellowi* Girault.

Joint 1 of funicle about twice longer than wide; valves of ovipositor black at tip; cross-stripe of fore wing nearly straight and from tip of stigmal vein. *poincarei* Girault.*

Femora and tibiæ concolorous only at one end (with a metallic band around femora and tibiæ near knees).

Valves of the ovipositor white at tip; parapsides concolorous; cross-stripe of fore wing broader, distinct. *speciosus* Girault.

Femora and tibiæ blotched with metallic; parapsides concolorous.

Valves of ovipositor white at tip; fore wings with very short marginal cilia, the cross-stripe distinct and from the side of the stigmal vein; about 10 lines of cilia under the marginal vein which are much coarser than the very fine main ciliation. Robust. *saintpierrei* Girault.

III. Fore wings more or less uniformly, distinctly blackened from base to end of venation or somewhat farther.

Fumation extending to end of venation, its distal margin straight and accented.

Mandibles tridentate.

Valves of ovipositor concolorous at tips; tibiæ concolorous. *semifuscipennis* Girault.

Mandibles bidentate.

The same but fore tibiæ pale along distal half or more, the hind wings broader and more obtuse at apex, and with scattered discal ciliation distad of venation. *bidentatus* Girault.

Fumation the same but deeper and its distal margin is convex or curved.

Tips of valves of ovipositor white; first two tibiæ pale at distal half or more. *nympha* Girault.

Genus TUMIDISCAPUS Girault.

Only the male of this genus is known. It is characterised by bearing an enormous, leaf-like expansion ventrad from the shaft of the scape, but agreeing otherwise with the male of *Aphelinus* Dalman. The second species of this genus (the type species is from North America) is described herewith.

1. TUMIDISCAPUS AUSTRALIENSIS new species.

Male:—Length, 0.75 mm.

Golden yellow and like the North American species, except that the second funicle joint is quadrate and barely longer than the first, the proximal club joint somewhat larger than it.

Female:—Not known.

Described from one male captured by sweeping in the forest, April, 1912.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1745*, Queensland Museum, the above specimen on a slide.

* Fore wing lightly dusky under all of marginal vein, margin to margin. *piceipes* new species (Nelson N. Q.).

GENUS MARLATTIELLA Howard.

Fore wings with an oblique hairless line; antennæ in the female 4-jointed, one small funicle joint, the club long, solid. Marginal vein longer than the submarginal, the stigmal normal.

1. MARLATTIELLA ALEYRODESII Cameron.

Cameron, 1912, pp. 215-216.

I take the principal characters of this species from the original description:—Yellow; mesonotum and dorsum of abdomen reddish orange; wings hyaline; body smooth and shining; submarginal vein longer than the marginal; scape a little shorter than the club.

Habitat: Broken Hill, New South Wales.

Type: Unknown.

GENUS PLASTOCHARELLA Girault.

Differs from *Thysanus* Haliday in having three true funicle joints (instead of three ring-joints, the funicle absent) and the marginal cilia of fore wings very short. Scutum and scutellum with a median grooved line. Antennæ 6-jointed. Fore wings with an oblique hairless line, densely ciliated. Male only.

1. PLASTOCHARELLA FUSCIPENNIS Girault. Male. Genotype.

Orange yellow, the abdomen black, also the legs except the trochanters, knees, tips of tibiæ and the tarsi; antennæ dusky, last two joints black; hind wings embrowned, clearer toward tip, the fore wing similarly so but less clear toward tip, clear and nearly naked proximad of the bend of the submarginal vein. Mesopleurum and tegula black.

Habitat: Ingham, Queensland.

Type: No. *Hy 1746*, Queensland Museum.

GENUS MYOCNEMELLA Girault.

Differing from all the genera of the subfamily in being 9-jointed antennæ with two minute ring-joints. With the habitus of *Ablerus* Howard, the ovipositor strongly exserted for a third of the length of the abdomen; intermediate tibiæ and first tarsal joint greatly, foliately flattened, also the femur somewhat flattened toward tip. Third funicle joint abruptly short and transverse, the funicle 3-jointed, the club 2-jointed. Hind femur compressed. Club somewhat as in the genus *Aphelinoidea* of the Trichogrammatidæ. Marginal vein distinctly shorter than the submarginal. The male is not known.

1. MYOCNEMELLA BIFASCIATA Girault. Female. Genotype.

Dark metallic blue, the legs and antennæ black; middle tarsal joints white; fore wings with two crescentric cross-stripes of brownish, one from the apical two thirds of the marginal vein (the broader), the other between the end of the stigmal vein and apex of wing; also a spot proximad at caudal margin which is large and sends out an arm to the first cross-stripe. A patch of coarse cilia under marginal vein, distal half. Other discal ciliation absent except from distal stripe to wing apex and along caudal half or more of first stripe.

Habitat: Capeville (Pentland), Queensland.

Type: No. *Hy 1747*, Queensland Museum.

Genus THYSANUS Haliday.

This genus certainly resembles *Signiphora* Ashmead of the Encyrtidæ in most respects, judging from Haliday's figures and Foerster's description, but if these latter are correct, the resemblance is not very close.

Genus MYIOCNEMA Ashmead.

Differs from *Encarsia* Foerster in having the hind tibiæ armed with very stiff black bristles

1. MYIOCNEMA PALLIDA Ashmead.

Ashmead, 1900, Canadian Entomologist, London, Ontario, xxxii., p. 349.

Habitat: Brisbane, Queensland.

Type: Probably in the United States National Museum, Washington, D.C., U.S.A.

Host: Saissetia oleæ Bernard.

TABLE TO THE APHELININE GENERA OF EULOPHIDÆ.

Australia. Females.

The following table is adapted from Howard (1907), making changes where necessary. The tribe is characterised by the 5-jointed tarsi. An oblique hairless line is frequently borne by the fore wing.

Fore wings with an obliquely transverse hairless line running back from the stigmal vein.

Antennæ 4-jointed, with one short funicle joint, the club long, solid.

Scape slender, the pedicel swollen; ovipositor somewhat exserted.

Marlattiella Howard (Type: *M. prima* Howard).

Antennæ 6-jointed without a ring-joint, the club 2-jointed.

Scape normal.

Ovipositor distinctly exserted; fore wings irregularly maculate.

Postscutellum of mesothorax acutely triangular.

Perissopterus Howard (Type: *Aphelinus pulchellus* Howard).

Ovipositor scarcely exserted; fore wings usually hyaline, rarely fuscous.

Thoracic notal sclerites normal.

Aphelinus Dalman (Type: *Entedon abdominalis* Dalman).

Scape greatly enlarged ventrad (male).

Tumidiscapus Girault (Type: *T. flavus* Girault).

Fore wings without an obliquely transverse hairless line running back from stigmal vein.

Antennæ 6-jointed, the funicle 3-jointed, no ring-joints. Marginal cilia of fore wing very short; scutum and scutellum with a median groove. Male.

Plastocharella Girault (Type: *P. fuscipennis* Girault).

Antennæ 7-jointed, without a ring-joint, the club 2-jointed.

Ovipositor scarcely extruded; funicle 1 shorter than 2 or 3.

Physcus Howard (Type: *Coccophagus varicornis* Howard).

Antennæ 8-jointed, with *one* ring-joint, the club solid.

Ovipositor distinctly exserted; stigmal vein normal; funicle 3 usually abruptly shortened; fore wings infuscated and sometimes reticulately patterned, rarely hyaline.

Marginal cilia of fore wing variable, often long; antennæ varicoloured; body metallic.

Ablerus Howard (Type: *Centrodora clisiocampæ* Ashmead).

Antennæ 8-jointed, *without* a ring-joint; flagellum cylindrical; legs normal; marginal cilia of fore wing shorter than the greatest width of that wing.

Club 2-jointed.

Hind tibiæ armed with very stiff black bristles.

Myiocnema Ashmead (Type: *M. comperei* Ashmead).

Hind tibiæ simple. **Encarsia** Foerster (Type: *E. tricolor* Foerster).

Club 3-jointed.

Marginal vein shorter than the submarginal.

Prospaltella Ashmead (Type: *Prospalta murtfeldtii* Howard).

Marginal vein as long as or longer than the submarginal.

Coccophagus Westwood (Type: *C. pulchellus* Westwood).

Antennæ 9-jointed with *one* ring-joint.

Club 3-jointed; marginal fringes of fore wing long, longer than the greatest width of the wings; fore wings obtusely conical; stigmal vein not prominent. Ovipositor not exserted.

Aspidiotiphagus Howard (Type: *Coccophagus citrinus* Craw).

Antennæ 9-jointed with *two* ring-joints.

Club 2-jointed; ovipositor strongly exserted; intermediate tibiæ and first tarsal joint foliaceously flattened; funicle 3 abruptly short and transverse; marginal vein distinctly shorter than the submarginal; fore wings usual in shape, their marginal cilia not as long as the greatest width.

Myocnemella Girault (Type: *M. bifasciata* Girault).

Tribe PTEROPTRICINI.

The tribe is characterised by the 4-jointed tarsi. The oblique hairless line of the fore wings rare with the genera if not absent.

Genus BARDYLIS Howard.

Antennæ 7-jointed without a ring-joint, the funicle 2-, the club long ovate, 3-jointed. First tarsal joint of middle legs nearly as long as joints 2 and 3 combined, the middle tibial spur not quite as long as the first tarsal joint. Marginal vein somewhat shorter than the submarginal; marginal cilia of fore wing rather long, the discal cilia dense, no oblique hairless line from stigmal vein. Funicle joints longer than wide, the flagellum clavate.

Male antennæ 8-jointed, more slender, the joints of flagellum not much unequal, the club 3-jointed; the tarsi are longer.

1. BARDYLIS AUSTRALIENSIS Howard. Female, male. Genotype

Howard, 1907, pp. 84-85, fig. 21.

Head, pronotum, scutum, tegulæ and abdomen brown; scutellum, metascutum, mesopleura and metapleura dull orange yellow; antennæ, coxæ and femora light brown. Fore wings with a dusky cloud below marginal vein. Mesoscutum faintly aciculate, the occiput densely and finely so. In the male the clouded portion of fore wing is lighter than in the female.

Habitat: Swan River and Perth, West Australia.

Types: Cat. *No. 10,311,* United States National Museum, Washington, D.C., U.S.A.

GENUS CASCA Howard.

Antennæ 7-jointed, somewhat clavate, the club 3-jointed, its joints subequal, the region long; funicle joints longer than wide. Tarsal joints of middle legs all short and subequal, the intermediate tibial spur as long as the first two tarsal joints of middle legs taken together. Marginal vein somewhat shorter than the submarginal, the fore wings uniformly ciliate, the marginal cilia long; no oblique hairless line. Male not known. Fore wing curved or broken.

1. CASCA NIGRA new species.

Male:—Length, 0.50 mm.

Black; antennæ, knees, distal halves or more of tibiæ and tarsi pale yellow; scutellum brownish with slight yellow; fore wings embrowned out to the end of the marginal vein or slightly beyond. Funicle 1 quadrate, no longer than the pedicel, joint 2 transverse, joint 3 a quarter longer than 1; the three club joints subequal in length, each slightly longer than funicle 3. Mandibles tridentate. A very short ring-joint present? Removed from *Archenomus* Howard.

Habitat: Nelson (Cairns), Queensland. Forest.

Type: No. *Hy 1748,* Queensland Museum, the above specimen on a slide.

The female of this species was discovered later, upon which the species was removed to *Casca,* with which it agrees; accordingly, the male of *Casca* agrees with the female of *Archenomus.* I describe the female herewith. The tarsi of both sexes are alike, also the wings.

Female:—Length, 0.45 mm.

Black, the coxæ and femora concolorous or dusky, rest of legs white; proximal half of tibia sometimes dusky; fore wing more or less distinctly infuscated out to end of venation and a more or less distinct broad hairless line back from end of venation; longest marginal fringes about a third of the greatest wing width (fore wing); antennæ yellowish, the second funicle joint slightly longer than the first. Scutellum yellowish.

Described from six or seven females reared from a *Chionaspis* on cockatoo apple, forest, December 18, 1911.

Habitat: Nelson (Cairns), Queensland.

The above male was captured by sweeping jungle growth along a forest streamlet, April 15, 1913.

SUBFAMILY TETRASTICHINÆ.

TRIBE TETRASTICHINI.

GENUS TETRASTICHUS Haliday.

1. TETRASTICHUS ARSES Walker. Female.

See De Dalla Torre, 1898, p. 10. Tasmania.

2. TETRASTICHUS AUTONAE Walker. Female

See De Dalla Torre, 1898, p. 11. Tasmania.

3. TETRASTICHUS BAUCIS Walker. Female.

See De Dalla Torre, 1898, p. 11. Australia.

4. TETRASTICHUS DYMAS Walker. Female

See De Dalla Torre, 1898, p. 14. Tasmania.

5. TETRASTICHUS GLYCON Walker. Female.

See De Dalla Torre, 1898, p. 16. Tasmania.

6. TETRASTICHUS HIPPASUS Walker. Female.

See De Dalla Torre, 1898, p. 16. Tasmania.

7. TETRASTICHUS LELAPS Walker. Female.

See De Dalla Torre, 1898, p. 17. Australia.

8. TETRASTICHUS NEIS Walker.

See De Dalla Torre, 1898, p. 19. Tasmania.

9. TETRASTICHUS OTYS Walker. Female.

See De Dalla Torre, 1898, p. 20. New South Wales.

10. TETRASTICHUS PROTO Walker. Female.

See De Dalla Torre, 1898, p. 21. Tasmania.

11. TETRASTICHUS VALENS Walker. Female.

See De Dalla Torre, 1898, p. 24. Tasmania.

12. TETRASTICHUS XENARES Walker. Female.

See De Dalla Torre, 1898, p. 25. Tasmania.

13. TETRASTICHUS ZALEUCUS Walker. Female.

See De Dalla Torre, 1898, p. 25. Tasmania.

14. TETRASTICHUS QUEENSLANDENSIS Girault. Female.

Dark metallic aeneous green, the tibiæ and tarsi straw yellow, pale, the femora and the coxæ concolorous with the body; scape black and the rest of antennæ. Wings hyaline.

Propodeum reticulated, tricarinate, the spiracle large, elliptical, just mesad of the lateral carinæ; funicle joints each twice or more the length of the pedicel. Median carina of propodeum short but complete.

Habitat: Queensland (? Brisbane). Forest.

Types: No. *Hy 1749*, Queensland Museum.

15. TETRASTICHUS VICTORIENSIS Girault. Female.

Shining black, the median groove of scutum and the lateral margin of scutellum straw yellow, also the antennæ, venation, tarsi, knees and portion of the tibiæ. Wings very slightly embrowned throughout and a light stain under apex of stigmal vein. Pedicel long, obconic, joints 1 and 3 of funicle subequal, joint 2 shorter and subquadrate.

Habitat: Melbourne, Victoria.

Type: No. *Hy 1200*, Queensland Museum.

16. TETRASTICHUS NELSONENSIS Girault. Female and male.

Much like *Tetrastichella fasciatus* but the abdomen less regularly banded, there being but five transverse stripes, the proximal one faint, the fourth abbreviated laterad, the fifth consisting merely of a transverse dash on each side of the meson. A round black spot in centre of scutum on each side of meson (sometimes obscure); an elongate spot in the centre of mesal margin of each parapside and a round dot in centre of scutellum at cephalic three fourths; another similar spot on the shoulder, directly cephalad of the base of each parapside. Differs markedly from *fasciatus* in that the discal ciliation of the fore wing beneath the marginal vein is coarser and less dense than that distad of the venation; in *fasciatus* the ciliation is equally fine and dense.

The male averages a half smaller, the discal ciliation of the fore wing less dense but relatively the same. There are three black stripes across the abdomen on distal half, the first interrupted at the meson.

Habitat: Nelson (Cairns), Queensland. Forest.

Types: No. *Hy 1750*, Queensland Museum.

17. TETRASTICHUS FLAVIOS Girault. Female.

Dark aeneous green, the face beneath antennæ straw yellow, the legs white, the hind coxæ blue; wings hyaline. Abdomen longer than the rest of the body, somewhat produced. Tegulæ white, pedicel yellow beneath. Funicle joints not long, the distal one a little longer than wide.

Habitat: Nelson (Cairns), Queensland. Forest.

Type: No. *Hy 1751*, Queensland Museum.

18. TETRASTICHUS XANTHER Girault. Female.

Reddish yellow, the abdomen with six black cross-stripes; centre of face and tip of ovipositor also black. Funicle joints cylindrical ovate.

Habitat: Nelson (Cairns), Queensland. Forest.

Type: No. *Hy 1752*, Queensland Museum.

19. TETRASTICHUS SAINTPIERREI Girault. Female.

Brilliant metallic grass green; the legs white except hind coxa; proximal third of abdomen orange yellow, the rest purple, the latter projecting at each lateral margin a little cephalad into the yellow; wings hyaline. First funicle joint longest.

Habitat: Nelson (Cairns), Queensland. Associated with *Melaleuca*, forest.

Type: No. *Hy 1753*, Queensland Museum.

20. TETRASTICHUS LADDI Girault. Female.

Like *queenslandensis* but the femora and pedicel concolorous, the distal funicle joint shorter and the propodeal spiracle is laterad of the lateral carina.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1754*, Queensland Museum.

21. TETRASTICHUS MITTAGONGENSIS Girault. Female.

Like *laddi* but the propodeum is longer, the distal club joint spined at apex.

Habitat: Mittagong, New South Wales.

Type: No. *I. 1232*, South Australian Museum, Adelaide.

22. TETRASTICHUS POINCAREI Girault. Female.

Like *queenslandensis* Girault but the femora concolorous and the abdomen produced into a slender stylus. Each funicle joint about twice longer than wide and only slightly unequal. Spiracle of propodeum laterad of the lateral carina.

Habitat: Nelson (Cairns), Queensland. Jungle.

Type: No. *Hy 1755*, Queensland Museum.

23. TETRASTICHUS BICOLOR Girault. Female.

Like *flavios* but black, the antennæ black, the distal joint of funicle distinctly longer than wide; proximal third of abdomen lemon yellow, also the tegulæ and legs. Hind coxa black. Median carina of propodeum short.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1756*, Queensland Museum.

24. TETRASTICHUS MARGIVENTRIS new species.

Female:—Length, 2.00 mm. With the habitus of *Ootetrastichus*.

Jet black, the wings hyaline, the coxæ concolorous, the legs and abdomen deep orange yellow, the abdomen at distal fourth or less and the lateral margins from base to tip rather broadly (continuously from dorsal to ventral aspects) black. Scape yellowish along proximal two thirds, elsewhere the antennæ black; pedicel elongate but shorter than the third funicle joint which is shortest of the funicle, the very long first funicle joint longer than the club,

nearly twice the length of the pedicel. Club with a short nipple, long, the divisions not very distinct but present. Two large ring-joints. Propodeum with a short median carina which is continued around the caudal margin by forking at the apex; the short lateral carina leads directly from the oval spiracle. Propodeum with a fine sculpture.

Male:—Unknown.

Described from a single female captured from the flowers of *Bœckea*, April 22, 1913 (H. Hacker).

Habitat: Brisbane, Queensland.

Type: No. *Hy 1757*, Queensland Museum, the above specimen on a tag, the head on a slide.

25. TETRASTICHUS DARWINI new species.

Female:—Length, 1.65 mm.

Yellow-brown, the wings hyaline, the legs concolorous, the antennæ black except the pale yellowish scape proximad of tip; pronotum dorsad, a large wedge-shaped spot at cephalic half of scutum on each side of meson, propodeum, apex of the parapsides and cephalic half of each axilla dusky black, abdomen with eight dusky, narrow cross-stripes (including one at immediate base), the fifth very broadly interrupted at meson. Pedicel elongate, somewhat longer than the funicle joints which are more or less equal and about twice longer than wide; terminal seta of club much shorter than the first club joint which is about half of the club and somewhat shorter than the funicle joints. Mandibles 3-dentate.

Male:—Not known.

Described from one female captured by sweeping a forest streamlet edged with jungle growth, December 2, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1758*, Queensland Museum, the above specimen on a tag, the head on a slide.

26. TETRASTICHUS MARGINATUS new species.

Female:—Length, 1.15 mm.

Agreeing with the description of *Quadrastichus sannio* Girault but blacker, the abdomen broadly margined only for proximal two thirds but the extreme tip colored, the legs wholly yellow except coxæ. Mandibles strongly bidentate and with a third minute tooth. Antennæ yellow; first funicle joint as long as the pedicel, the other two subequal, longer than wide; club with a short nipple.

Male:—Not known.

Described from a single female captured by sweeping fruit and other trees along a tramway and in mixed jungle and forest along the Herbert River, February 26, 1913.

Habitat: Halifax, Queensland.

Type: No. *Hy 1759*, Queensland Museum, the above specimen on a tag, the head on a slide.

27. TETRASTICHUS COBDENI new species.

Female:—Length, 1.20-1.50 mm.

Somewhat like *bicolor* Girault but nearly the entire head is lemon yellow, the centre of the occiput blackish. The scape is also yellowish. Abdomen yellowish brown at proximal third, otherwise dark brown with more or less obscure cross-stripes.

Described from two females captured by sweeping, summit of Pyramid Mountain (3,000 feet), August 17, 1912. Dedicated with respect to Richard Cobden.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1760,* Queensland Museum, the two females together on a tag, one head on a slide.

28. TETRASTICHUS XANTHICOLOR new species.

Female:—Length, 1.70 mm.

Reddish yellow, the wings hyaline, the abdomen dusky and with more or less obscure transverse stripes; legs yellowish brown, the front coxa dusky at base; cephalic portion of scutum, cephalic end of parapsides, sides of thorax and the propodeum dusky. Pedicel not elongate, somewhat shorter than the first funicle joint which is not quite twice longer than wide, the other two each shortening somewhat; antennæ dusky yellowish brown. Mandibles tridentate.

Male:—Not known.

Described from one female captured by sweeping *Leptospermum,* April 16, 1913 (H. Hacker).

Habitat: Brisbane, Queensland.

Type: No. *Hy 1761,* Queensland Museum, the above specimen on a slide.

29. TETRASTICHUS IO new species.

Female:—Length, 1.35 mm.

Greenish yellow marked with black as follows: The abdomen with four transverse stripes, the first one of these interrupted at the meson, not continuous there, the fourth stripe with an acute, triangular projection cephalad at the meson; a round spot at base of scutellum between the first grooves; the propodeum; cephalic half of each axilla; the parapsidal furrows margined rather broadly laterad; cephalic third or less of scutum; tip of abdomen and last tarsal joint; centre of occiput; base of hind coxa and femur the latter along one side; and irregularly, the thoracic pleurum. Wings hyaline, the discal ciliation uniform. Pedicel longer than any of the funicle joints, the latter subquadrate, the first a little the longest; club joints wider than long. Second ring-joint extremely short, the first large, distinct.

Male:—Not known.

Described from one specimen captured by sweeping forest growths on Mount Pyramid (1,500-2,500 feet), June 3, 1913 (A. P. Dodd).

Habitat: Australia—Nelson (Cairns), Queensland.

Type: No. *Hy 1762,* Queensland Museum, the above specimen on a slide.

DIAGNOSIS OF THE AUSTRALIAN SPECIES OF *TETRASTICHUS* HALIDAY.

The species of Walker (1839) are omitted from the table for the reason that all we know of them is that they bear a median groove on the scutum; most probably they belong to various genera. Walker described all of them in *Cirrospilus* Westwood—an elachertine genus which Westwood describes as bearing 7-jointed antennæ but which Ashmead changes to 9-jointed with one ring-joint without giving reasons for so doing. Thus, if referred to the Tetrastichini they should have been placed more properly with *Aprostocetus*. It is hazardous, however, to consider them other than as most-probable tetrastichine because of the thoracic grooves. To attempt to identify them without seeing their types would be the more hazardous. None of the following species are likely to be Walker's since the latter are mostly from Tasmania.

I. Metallic green.
  Abdomen normal, only slightly produced.
    Head and abdomen all concolorous; femora concolorous.
      Propodeal spiracle laterad of the lateral carina.
        Dark green, the coxæ and femora concolorous; propodeum short, the antennal club without a terminal spur. *laddi* Girault.

        The same; propodeum long, the distal club joint spined at apex. *mittagongensis* Girault.
      Propodeal spiracle mesad of the lateral carina. *queenslandensis* Girault.

    Either the head or the abdomen partly yellowish; femora white.
      Dark aeneous green, the face beneath antennæ straw yellow; legs white, the hind coxæ blue; distal funicle joint a little longer than wide. *flavios* Girault.

      Brilliant metallic green, the legs the same; proximal third of abdomen orange yellow, the rest purple. *saintpierrei* Girault.

  Abdomen produced into a stylus.
    Dark green; funicle joints about twice longer than wide and more or less equal. *poincarei* Girault.

II. Black or dark purple.
  Abdomen all black.
    Median groove of scutum and lateral margins of scutellum straw yellow; also the antennæ, venation, knees, tarsi and portions of the tibiæ; joint 2 of funicle shortest, subquadrate. *victoriensis* Girault.

  Abdomen partly or mostly yellow.
    Head all black.
      Abdomen deep orange yellow, black at distal fourth and down each margin from base; legs colored like the abdomen (except coxæ); antennæ black; pedicel and funicle joints elongate; lateral carina leading directly from the spiracle. *margiventris* Girault.

      Abdomen lemon yellow, margined along each side from base to distal third with black and the extreme tip colored; legs except coxa, yellow; funicle joints not elongate. *marginatus* Girault.

    Head partly or mostly yellow.
      Face beneath antennæ yellow; distal joint of funicle longer than wide; proximal third of abdomen lemon yellow, also the tegulæ and legs; hind coxa black. *bicolor* Girault.

Nearly entire head lemon yellow; abdomen yellowish brown at proximal third, the rest dark brown and with more or less obscure dusky cross-stripes. *cobdeni* Girault.

III. Lemon or reddish or brownish yellow.

Reddish yellow.

Thorax immaculate, the abdomen with six black cross-stripes; centre of face and tip of ovipositor black; funicle joints cylindrical ovate. *xanther* Girault.*

Cephalic portion of scutum, cephalic end of parapsides, sides of thorax and the propodeum dusky; funicle 1 not quite twice longer than wide, the others shortening. *xanthicolor* Girault.

Lemon yellow, the antennæ concolorous (see description). *nelsonensis* Girault.

Greenish yellow, the abdomen with four cross-stripes (see description). *io* Girault.

Brownish yellow, the legs concolorous, the antennæ black, the scape yellow nearly to tip; see description. *darwini* Girault.

GENUS MELITTOBIA Westwood.

1. MELITTOBIA AUSTRALICA Girault. Female, male.

Brown-black; proximal two thirds of abdomen lighter; legs yellow, the coxæ and femora washed with dilute dusky; antennæ brownish black; funicle joints 2 and 3 subequal, slightly wider than long, joint 1 subquadrate, slightly wider than the pedicel. Hind wings with about twelve lines of discal cilia where widest. Fore wings about two and a quarter times longer than wide. Distal joint of tarsi longest of the four. The cuneate scutum stained with minute setigerous dots. Scutellum longer than wide. Club with a stout terminal seta.

The male is light honey yellow; abdomen dorsad, femora, distal tarsal joint and scape subfuscous. Fore wings with about eight lines of discal cilia; funicle joints wider than long, the first shortest, transverse; terminal spur of club just traceable.

Habitat: Mt. Tambourine and Brisbane, Queensland.

Host: Pison spinolæ.

Type: No. *Hy 997*, Queensland Museum.

GENUS SYNTOMOSPHYRUM Foerster.

Neotetrastichus Perkins, 1912, is a synonym of this genus.

1. SYNTOMOSPHYRUM HYALINIPENNE Girault. Female.

Purplish black; wings hyaline; femora and coxæ more or less concolorous, the rest of legs yellowish. Antennæ yellow-brown, the club not terminating in a spine; pedicel slightly longer than either of the funicle joints which are subequal and one and a quarter times longer than broad. Propodeum shining, with a median carina.

Habitat: Brisbane, Queensland.

Type: No. *Hy 1763*, Queensland Museum.

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* *Epitetrastichus.*

2. SYNTOMOSPHYRUM GREGI new species.

Female:—Length, 1.00 mm.

Brown, the abdomen with four faint dusky transverse stripes, the wings hyaline; distal two thirds of scutum and the legs yellow, the antennæ black, filiform, slender, the pedicel elongate, nearly as long as the first funicle joint which is longest of the flagellum; distal funicle joint longer than any of the club joints but barely more so than the first two of that region which are subequal and twice longer than wide, the third joint ending in a stout, rather long seta.

Male:—Not known.

Described from a single female captured by sweeping *Leptospermum*, April 16, 1913 (H. Hacker).

Habitat: Brisbane, Queensland.

Type: No. *Hy 1764*, Queensland Museum, the above specimen on a slide.

3. SYNTOMOSPHYRUM PULLUM new species.

Female:—Length, 1.05 mm.

Brownish black, the scutellum laterad of first groove yellowish brown, the head except the cheeks just below the eyes which are dusky, golden yellow. Legs pale lemon yellow. Antennæ dusky black but otherwise as in *Aprostocetus obscurus* except the pedicel is distinctly shorter than the first funicle joint which is just about twice longer than wide.

Male:—Not known.

Described from one female captured by sweeping in a jungle pocket, May 26, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1765*, Queensland Museum, the above specimen on a slide.

4. SYNTOMOSPHYRUM FLAVISCUTELLUM new species.

Female:—Length, 0.85 mm.

Brownish black, the scutellum, postscutellum, lateral and cephalic margins of scutum and most of the head bright lemon yellow, the wings hyaline; legs bright pale lemon yellow, the coxæ and hind femora at proximal half concolorous with the body; antennæ pallid, the funicle joints all wider than long. Mandibles tridentate.

From one female captured by sweeping in forest (Ayr), November 7, 1912 and another same situation, Townsville, January 27, 1913.

Habitat: Ayr and Townsville, Queensland.

Type: No. *Hy 1766*, Queensland Museum, the above specimen on a slide.

DIAGNOSIS OF THE AUSTRALIAN SPECIES OF *SYNTOMOSPHYRUM* FOERSTER.

Club not terminating in a distinct stout seta or spine.

Purplish black, the tibiæ, tarsi and antennæ yellowish; funicle joints a fourth longer than wide, subequal, the pedicel a little longer. *hyalinapenne* Girault.

Brown-black, the scutellum, postscutellum, lateral and cephalic margins of scutum and most of head bright lemon yellow; legs lemon yellow, except coxæ and basal half of hind femur; funicle joints all wider than long. *flaviscutellum* Girault.

Club terminating in a distinct seta or spine.

Brown, the abdomen with four dusky cross-stripes; distal two thirds of scutum and the legs yellow, the antennæ black, filiform, slender, the pedicel elongate and nearly as long as funicle 1. *gregi* Girault.

Brown-black, the scutellum laterad of first groove yellowish brown, the head golden yellow; legs pale lemon yellow. Antennæ dusky black; funicle 1 twice longer than wide. *pullum* Girault.

GENUS TETRASTICHODES Ashmead.

1. TETRASTICHODES FROGGATTI Ashmead.

Tetrastichodes froggatti Ashmead, 1900, pp. 346-347.

Yellow; a dusky band across vertex inclosing the ocelli; scutum, a dot on inner hind angle of parapsides, a spot on scutellum at anterior middle, propodeum and segments 3, 4 and 5 (more or less) of dorsal abdomen brown or brown-black. Wings hyaline. Legs pale yellowish. Antennæ light brownish.

Habitat: Hornsby, New South Wales. Gall on *Eucalyptus.*

Types: Cat. No. *4900,* United States National Museum, Washington, D.C., U.S.A.

2. TETRASTICHODES MORUM new species.

Female:—Length, 0.70 mm. Short and robust.

Brownish black, the wings hyaline, the legs (plus coxæ), base of abdomen broadly and a more or less distinct yellowish stripe just beyond, also the antennæ, lemon yellow (scape not seen); front tibia with a black dot centrally, latero-ventrad, the proximal half of hind femur slightly embrowned. Head mostly lemon yellow. Mandibles tridentate; joint 1 of funicle as long as the other two combined which are much wider than long, 1 being quadrate.

Male:—Not known.

Described from two females captured with the preceding.

Habitat: Capeville (Pentland), Queensland.

Type: No. *Hy 1767,* Queensland Museum, one of the above specimens on a slide (with two foreign specimens, the type head under a different cover with one of the foreign specimens).

3. TETRASTICHODES LINEATUS new species.

Female:—Length, 0.85 mm.

Golden yellow, the wings hyaline, marked with black as follows: Four stripes across abdomen, the first three interrupted rather widely along the meson and all thin, the fourth barely interrupted at meson and stout; immediate base of abdomen more or less obscurely at centre, a round dot on pronotum dorso-laterad, disk of propodeum, two wedge-shaped spots on scutum cephalad, one on each side of meson, one on each parapside, a rather large round spot in centre of scutellum at base, the tegulæ and parts of axillæ. Mandibles tridentate. Funicle joints all rather much wider than long, the last shortest, transverse.

Male:—The same or nearly.

Described from one male and two females captured by sweeping in the forest along the banks of Cape River, December 26, 1913.

Habitat: Capevilie (Peutland), Queensland.

Types: No. *Hy 1768*, Queensland Museum, the above specimens on a slide.

4. TETRASTICHODES AUSTRALICUS new species.

Female:—Length, 1.15 mm.

Orange yellow, the abdomen lemon yellow and transversely striped with many obscure round dusky stripes; wings hyaline; legs lemon yellow; cephalic portion of scutum deep fuscous, the propodeum lemon yellow. Scape and pedicel yellow at sides and beneath, the rest of the antenna black, excepting the ring-joints; funicle and club joints elongate, those of the former subequal, twice the length of the pedicel nearly, the club joints shortening in succession, the first a fourth shorter than one of the funicle joints, the last no longer than the pedicel yet terminating in a long, stout spine-like process which is as long as the first club joint. Pedicel short. Mandibles tridentate. A fuscous spot at base of scutellum at meson; median carina of propodeum forked just before apex, the disk on each side of it fuscous. Apex of each parapside and axilla (cephalad) fuscous.

Male:—Not known.

Described from a single female captured by sweeping forest growth along a roadside, February 18, 1913. The peculiar antennæ are unique for the genus.

Habitat: Ripple Creek (Ingham), Queensland.

Type: No. *Hy 1769*, Queensland Museum, the above specimen on a tag, the head on a slide.

5. TETRASTICHODES MARGISCUTUM new species.

Female:—Length, 1.55 mm. Short and robust, the abdomen almost round from lateral aspect.

Chocolate brown, the legs except the coxæ and hind femora; sides of pronotum, tegulæ, sides of scutum narrowly and each side of the grooves of scutellum, pale yellow or white. Thorax microscopically sheened or satiny; non-metallic. Wings very broad, hyaline. Antennæ pale brown, the scape compressed, the pedicel much longer than any of the funicle joints, the third joint of the funicle transversly cup-shaped, the other two subequal and about twice longer but still wider than long. Mandibles tridentate. Head pale yellow or white.

Male:—The same but smaller and the incisions of abdominal segments pale and sometimes, if not usually, conspicuous.

Described from many specimens of both sexes reared from a gall on the foliage of *Eucalyptus* in forest, September 18, 1912. Also reared in large numbers from a tuber-like gall on *Eucalyptus*, September 2, 1913 (E. J. Girault).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1770*, Queensland Museum, one male, one female together on a tag, two female heads on a slide.

6. TETRASTICHODES AURISCUTELLUM new species.

Female:—Length, 0.85 mm. Short, compact and robust.

Funicle as in *morum*. Golden yellow, the wings hyaline, the pronotum, the abdomen except down the whole of the median line and a large wedge-shaped spot at cephalic margin of scutum on each side of meson, dusky black. Incisions of abdominal segments and the legs white, the hind coxæ more or less dusky. First funicle joint somewhat shorter than the pedicel.

Male:—Not known.

Described from one female captured by sweeping in a jungle pocket, July 24, 1913.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1771*, Queensland Museum, the above specimen on a slide.

7. TETRASTICHODES CONSOBRINUS new species.

Female:—Length, 1.80 mm.

Like *fasciatus* but the abdomen bears five *narrow* stripes of black across it, all of which are interrupted at the meson except the third, the fifth stripe merely represented by a short, transverse dot in the centre of each medial half; also the dorsum of thorax is unmarked excepting for a small ovate spot at the apex of each axilla, a larger spot near the tegula just caudo-laterad of the first and the cephalic margin of the propodeum and the latter's meson. Centre of scutellum a little brownish. Second funicle joint shorter than the other two. Compared with specimens of *fasciatus*.

Male:—Unknown.

Described from three females reared with *fasciatus* from a lot of miscellaneous galls on *Eucalyptus*, September 18, 1912.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1772*, Queensland Museum, one of the above specimens on a tag, two heads on a slide.

8. TETRASTICHODES FASCIATUS (Girault). Female.

Zagrammosomoides fasciatus Girault. Genotype.

Flavous, the wings hyaline the appendages concolorous. Conspicuously marked with black as follows: In the dorsal aspect the abdomen is banded across the posterior margins of the segments commencing at base, there being six transverse stripes which lengthen (widen) distad The propodeum is black, also the pronotum cephalad in the dorsal aspect on each side of the median line appearing like two large cuneate spots, a large ovate spot in the centre of the mesoscutellum, an ovate spot on each side of (not upon) the scutum, in the cephalic angle of each axilla and a smaller spot at the caudo-lateral angle of the pronotum. Cephalad in the disk the scutum is distinctly stained except along the median line; each parapside is similarly stained and also the vertex may be so the stained area projecting into the face (cephalic aspect) like wedges on each side. The antennæ are suffused with dusky as are also the femora of the legs more or less. The proximal club joint is nearly half as long as the entire club. Whole body finely polygonally reticulated, the vertex and face with more or less obscure umbilicate punctures. Funicle joints much smaller than the pedicel, subquadrate.

Male:—Somewhat smaller; the same but the dark areas on the cephalic part of the scutum usually black and nearly coalesced; the abdomen bears only five transverse stripes which lengthen (become thicker) caudad, the second concaved at the meson, the fifth twice longer than the fourth, none of the distal four stripes with parallel margins. (Types re-examined.)

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1169*, Queensland Museum.

TABLE TO THE AUSTRALIAN FORMS OF *TETRASTICHODES* ASHMEAD.

Females.

It is well to point out that there are two distinct types in *Tetrastichodes*, the one robust, the antennæ short, the abdomen short and globular, the propodeum short and usually non-carinate; the other more slender, the antennæ with longer joints and slenderer club, the abdomen conic ovate, the propodeum long and with a distinct median carina. The former belong to the subgenus *Zagrammosomoides* Girault which I described as a genus in the Elachertini. However, its somewhat broken submarginal vein, the fine sculpture and the thoracic grooves serve to show its true affinities. It seems entitled to generic rank but I do not know the characteristics of the genotype of *Tetrastichodes*.

Yellow species.

Scutum wholly black-brown.

A dot on inner hind angles of parapsides, a spot at base of scutellum at meson, propodeum and segments 3-5 of abdomen brown or black-brown. Legs pale yellow. *froggatti* Ashmead.

Scutum only partly black-brown or dusky.

Funicle joints elongate (much longer than wide).

Orange yellow, the abdomen lemon yellow and with many obscure, narrow dusky cross-stripes; cephalic portion of scutum fuscous; scape and pedicel yellow at sides and beneath, the antennæ black; funicle joints subequal, twice the length of the pedicel or nearly; a fuscous spot at meson, base of scutellum; median carina on propodeum. Disk of propodeum on each side of meson, apex of parapsides and axillæ cephalad, fuscous. *australica* Girault.

Funicle joints short, quadrate or wider than long.

Abdomen with cross-stripes.

Golden yellow; four cross-stripes on abdomen, the first three interrupted at meson, a dot on pronotum dorso-laterad, disk of propodeum, two wedge-shaped spots on cephalic scutum, another on each parapside, a round spot at centre of scutellum at base, black. Funicle joints all wider than long. *lineatus* Girault.

Yellow; six complete cross-stripes on abdomen; pronotum cephalad on each side of median line, propodeum, a large ovate spot in centre of scutellum, an ovate spot on each side (not upon) scutum at cephalic angle of each axilla and a smaller spot on pronotum caudo-laterad black; scutum stained cephalad on each side of meson, also each parapside and the vertex (more or less). Proximal club joint nearly half the club. *fasciatus* Girault.

The same; five narrow cross-stripes on abdomen, all interrupted at the meson except the third, the fifth represented by a transverse dot centrally on each side; thorax unmarked excepting for a small ovate dusky spot at the apex of each axilla, a larger spot near the tegula just caudo-laterad of the first and cephalic margin of propodeum and the meson of the latter. Funicle 2 shorter than others. *consobrinus* Girault.

Abdomen without cross-stripes.

Golden yellow; pronotum, abdomen except down the whole of the median line and a large cuneate spot on each side of meson of cephalic scutum, dusky black. Legs pale. Funicle 1 quadrate, the other two wider than long. *auriscutellum* Girault.

Brown or brownish black species.

Scutellum concolorous.

Brownish black; head, base of abdomen and a cross-stripe distad a little farther and the legs lemon yellow; joint 1 of funicle equal to 2 and 3 combined. *morum* Girault.

Scutellum with the grooves pallid yellowish.

Chocolate brown; head, sides of scutum narrowly, legs except coxæ and hind femora and the antennæ pallid; funicle 1 shorter than 2 and 3 combined, subequal to 2. *margiscutum* Girault.

GENUS APROSTOCETUS Westwood.

1. APROSTOCETUS KURANDENSIS (Girault). Female.

Tetrastichus kurandensis Girault.

Bright dark metallic green-blue, tibiæ and tarsi straw yellow, the femora more or less metallic; scape brown, the pedicel dark fuscous; rest of antennæ black; propodeum tricarinate, the large spiracle laterad of the lateral carina; funicle joints each twice or more the length of the pedicel; third club joint with a terminal spur. Abdomen conic-ovate. Wings hyaline.

Habitat: Kuranda, Queensland. Jungle?

Type: No. *Hy 1773*, Queensland Museum.

2. APROSTOCETUS IMPERIALIS new species.

Female:—Length, 1.15 mm.

Dark metallic purple including dorsum of abdomen excepting a large round lemon yellow spot centrally at base; rest of abdomen and legs pale lemon yellow; antennæ pale dusky yellow, the second funicle joint subequal to the pedicel, the first a little longer; the third shortest of the funicle, a little longer than the first club joint which is longer than wide. Pedicel long.

Male:—Not known.

From two females captured August 2, 1913 by sweeping in forest (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1774*, Queensland Museum, the above specimen on tag, the head on a slide.

3. APROSTOCETUS VIRIDIFLAVUS new species.

Female:—Length, 1.60 mm.

Intense greenish yellow, the wings hyaline; immaculate, flagellum darker, the funicle joints long, the second one a little the longest, the first a little the shortest, subequal to the rather long pedicel which is black above at base; distal club joint nippled, dusky, shortest (excluding the nipple); flagellum with scattered, long hairs. Mandibles tridentate. A dark area on abdomen just before tip.

Male:—Unknown.

Described from one female captured by sweeping in forest, June 27, 1913 (slight jungle was encountered).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1775*, Queensland Museum, the above specimen on a tag, the head on a slide.

Later, on August 5, 1913, another female of this beautiful species was captured in the forest.

4. APROSTOCETUS FLAVUS new species.

Female:—Length, 1.18 mm.

Bright lemon yellow, the wings hyaline, the antennæ and legs concolorous; two cross-stripes of black-brown on dorsal abdomen just at the middle, the first or proximal one only represented by a short part on each side, medially widely separated. A long subfuscous spot down cephalo-mesal side of each axilla and the middle of each half of the scutum is embrowned or stained; pronotum with a short, tolerably wide cross-marking at meson. Propodeum with a short median carina, its cephalic margin fuscous. Funicle joints all a little longer than wide, shorter than the elongate pedicel; ring-joint large. Mandibles tridentate.

Male:—Not known.

Described from one female captured by sweeping on the forest downs, July 14, 1912.

Habitat: Hughenden, Queensland.

Type: No. *Hy 1776*, Queensland Museum, the above specimen on a tag, the head on a slide.

5. APROSTOCETUS MARGIVENTRIS new species.

Female:—Length, 1.20 mm.

Dark metallic purple, the wings hyaline, the abdomen, knees, tibiæ and tarsi pale lemon yellow, the rest of the legs concolorous; abdomen margined down each side rather broadly with metallic purple nearly to tip and crossed on the distal half by thin, rather faint purplish stripes; immediate tip of abdomen purple and the base very narrowly so. Antennæ pale, the club rather dusky. Second and third funicle joints subequal, distinctly longer than the first and subequal to the pedicel which is purplish above at base. Club with a short terminal spine. Mandibles tridentate.

Male:—Not known.

Described from a single female captured by sweeping in a jungle pocket, July 21, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1777*, Queensland Museum, the above specimen on a slide.

6. APROSTOCETUS OBSCURUS new species.

Female:—Length, 1.10 mm.

Yellowish brown, the wings hyaline, the pronotum, cephalic part of scutum and its median grooved line, inner sides of parapsides, propodeum, postscutellum and three cross-stripes on abdomen beginning just distad of middle, dusky blackish; antenna except scape and lower part of pedicel (white or pallid), vertex and oral region, dusky. Mandibles tridentate, scutellum with four grooves. Pedicel slightly shorter than first funicle joint, the next two joints longest of the flagellum, subequal; club terminating in a long seta, the flagellum cylindrical. First funicle joint over twice longer than wide.

Male:—Not known.

Described from one female captured by sweeping in jungle, July 26, 1913.

Habitat: Meerawa (Cairns), Queensland.

Type: No. *Hy 1778*, Queensland Museum, the above specimen on a slide, with type head of *Quadrastichus aeneus* Girault.

7. APROSTOCETUS NIGRITHORAX new species.

Female:—Length, 1.15 mm.

Black, the wings hyaline, the abdomen brownish, lemon yellow at base, the legs lemon yellow (coxæ not seen); inner margins of parapside yellow; antennæ dusky yellowish, the funicle joints all subquadrate, the first a little the longest, somewhat shorter than the pedicel.

Male:—Not known.

Described from one female captured by sweeping young eucalypts, April 20, 1913 (H. Hacker).

Habitat: Brisbane, Queensland.

Type: No. *Hy 1779*, Queensland Museum, the above specimen on a tag, an antenna on a slide.

8. APROSTOCETUS SEXGUTTATUS new species.

Female:—Length, 0.80 mm.

Golden yellow and like *flavus* but on dorsal abdomen along proximal half there is a line of three rather large spots down each side; the scutum is not noticeably embrowned and there is a fuscous dot on pronotum at latero-caudal angle. Funicle joints subquadrate, the third a little longer, all shorter than the pedicel which is not elongate, only of moderate length. Club with a minute nipple, its middle joint subtransverse.

Male:—Not known.

From one female captured by sweeping in forest, banks of Cape River, December 26, 1913.

Habitat: Capeville (Pentland), Queensland.

Type: No. *Hy 1780*, Queensland Museum, the above specimen on a slide. I have compared this species with the type of *Epentastichus* which it so closely resembles; the antennal differences are easily seen, since here the pedicel is not elongate but usual in length. It is necessary that more material be seen, however, before it can be stated positively that the club is 3-jointed, plainly indicated in the above specimen of *sexguttatus*.

9. APROSTOCETUS MONTANUS new species.

Female:—Length, 1.33 mm.

Dark metallic green, the wings hyaline; sculpture usual for the tribe; legs intense lemon yellow except the coxæ (second coxæ yellow except at base); proximal half or more of hind femora concolorous, abdomen suffused with brownish; tegulæ, side of prothorax (propleuræ), cephalic margin of pronotum and a narrow transverse line near caudal margins of same on each side of meson, bright lemon yellow. Antennæ yellow, the pedicel dusky at base, the first funicle joint a little longer than the others which are subquadrate, each a little shorter than the pedicel. Club with a very minute nipple. Mandibles weakly tridentate, the head more or less yellowish about the face.

Male:—Not known.

Described from a female captured by sweeping forest along top of second coast range of mountains (1,500 feet), May 21, 1912.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1781*, Queensland Museum, the above specimen on a tag, the head on a slide.

The pronotum, between the marginal lines of yellow, is more or less yellow, leaving a rather broad concolorous path down the meson. This species is probably a *Syntomosphyrum*.

10. APROSTOCETUS PURPUREUS new species.

Female:—Length, 1.30 mm.

Very much like *montanus* but purple, the caudal margin of pronotum, head (except occiput), a large spot near each lateral margin of pronotum, propleuræ, inner and cephalic margins of the axillæ, base of abdomen on each side and a narrow cross-stripe just before tip, lemon yellow; abdomen brown. Funicle joints all wider than long, all distinctly shorter than the pedicel, joints 2 and 3 nearly twice wider than long; club nipple small but distinct. Mandibles with three long slender teeth.

Described from one female captured in the forest, November 29, 1911.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1782*, Queensland Museum, the above specimen on a tag, the head on a slide.

11. APROSTOCETUS FLAVICAPUT new species.

Female: Length, 1.20 mm.

Dark metallic green, the wings hyaline, the abdomen longer than the thorax, conic-ovate, dark; legs except coxæ, white, the head yellow, the antennæ dusky yellow, the scape and pedicel paler; joints 2 and 3 of funicle subequal, shortest, joint 1 longer than the pedicel which is subequal to joint 2 of the funicle which is somewhat longer than wide; club with a small nipple. Propodeum very short at the meson. Mandibles tridentate.

Male:—Not known.

Described from one female captured from a window in an iron foundry, December 26, 1911.

Habitat: Mareeba, Queensland.

Type: No. *Hy 1783*, Queensland Museum, the above specimen on a tag, the head on a slide.

12. APROSTOCETUS GOBIUS new species.

Female:—Length, 0.89 mm.

Chocolate brown, the scape and pedicel pallid, the funicle and club pallid dusky, the legs yellow brown; scutellum darker; wings hyaline, the marginal fringes lengthened somewhat, the stigmal vein long and very slender, the postmarginal developed somewhat. Ovipositor distinctly but shortly extruded. Propodeum with a median carina only. Antennæ slender, filiform and loosely jointed, funicle 1 distinctly longer than the rather long pedicel (which narrows proximad), funicle 3 subequal to pedicel and first club joint; distal club joint with a long terminal spine. Funicle with scattered, soft long hairs. Scape slender. Mandibles tridentate.

Male:—Not known.

Described from one female captured by sweeping in jungle, September 14, 1913 (A. P. Dodd).

Habitat: Kuranda, Queensland.

Type: No. *Hy 1784,* Queensland Museum, the above female on a tag, the head on a slide with the type of *Ooctonus gigas* Girault.

13. APROSTOCETUS POMOSUS new species.

Female:—Length, 1.10 mm.

Golden yellowish brown, the wings hyaline; pronotum, all of abdomen except at base and tip rather broadly, cephalo-lateral portion of propodeum and the flagellum black; scape and distal half of pedicel pale yellowish, the flagellum filiform, clothed with scattered long hairs and as in *gobius* but the funicle joints are all equal, or 2 and 3 slightly longer than 1, the pedicel is shorter than in *gobius,* distinctly shorter than funicle 3. Propodeum with a pair of delicate median carinæ. Postmarginal vein wholly absent. Mandibles tridentate.

Male:—Not known.

Described from one female captured by sweeping in the jungle, September 15, 1913 (A. P. Dodd).

Habitat: Kuranda, Queensland.

Type: No. *Hy 1785,* Queensland Museum, the above specimen on a slide.

TABLE TO THE SPECIES OF *APROSTOCETUS* WESTWOOD OF AUSTRALIA.

FEMALES.

Metallic green or purple species.

Body wholly metallic green (excluding appendages).

Dark metallic green, the tibiæ and tarsi straw yellow, the femora washed with metallic; scape brown, the pedicel fuscous, rest of antenna black. Propodeum tricarinate; funicle joints each twice or more the length of the pedicel.

kurandensis Girault.

Body (excluding appendages) more or less yellow.

Dark metallic green, the wings hyaline; legs intense lemon yellow except coxæ; proximal half or more of hind femur green; tegulæ, propleuræ, cephalic margin of pronotum and a narrow transverse line near caudal margin of same on each side of meson, lemon yellow. Antennæ yellow, the funicle joints subquadrate, joint 1 a little longer. *montanus* Girault.

Dark metallic purple; abdomen, knees, tibiæ and tarsi pale lemon yellow; abdomen margined down each side rather broadly nearly to tip with purple and crossed on the distal half by thin faint purplish stripes. Joints 2 and 3 of funicle subequal, each distinctly longer than the first. *margiventris* Girault.

The same; hind margin of pronotum, head, a large spot near lateral margin on pronotum, propleuræ, inner and cephalic margins of axillæ, abdomen at base on each side and a stripe just before tip, lemon yellow. *purpureus* Girault.

Dark metallic purple; a large round yellow spot centrally at base of abdomen dorsad; venter of abdomen and legs lemon yellow; pedicel long, joint 3 of funicle shortest. *imperialis* Girault.

Dark metallic green, the head yellow, the legs white except coxæ; pedicel subequal to joint 2 of funicle. *flavicaput* Girault.

Black species.

Abdomen brownish, lemon yellow at base, the legs and inner margins of parapsides, yellow; funicle joints subquadrate, 1 a little the longest, slightly shorter than the pedicel. *nigrithorax* Girault.

Greenish, brownish or golden yellow species.

Lemon yellow, the antennæ and legs concolorous; two cross-stripes of fuscous on abdomen just at middle, the first widely interrupted at middle; a long dusky spot down cephalo-mesal side of each axilla; funicle joints all a little longer than wide, shorter than the elongate pedicel. *flavus* Girault.

Golden yellow; the same but there is a line of three rather large dots along each side of abdomen at proximal half and a fuscous dot on pronotum at latero-caudal angle. Pedicel not elongate, longer than the subquadrate funicle joints. *sexguttatus* Girault.

Intense greenish yellow, non-metallic and immaculate; funicle joints long, 2 a little the longest, 1 subequal to the rather long pedicel which is black above at base; a dark area on abdomen just before tip. *viridiflavus* Girault.

Yellowish brown; pronotum, cephalic part of scutum and its median sulcus, inner sides of parapsides, propodeum, postscutellum and three cross-stripes on abdomen just distad of middle, blackish; joints 2 and 3 of funicle longest, 1 over twice longer than wide. *obscurus* Girault.

(See descriptions of *gobius* and *pomosus*.)

Genus OOTETRASTICHUS Perkins.

Synonym: *Trichaporoides* Girault.

The original description of this genus is not very clear but the elongated funicle joints and the long 2-jointed club are characteristic and I have very little doubt but that I have correctly described the genus under the name of *Trichaporoides* which is thus a true synonym. The antennæ show *four* ring-joints.

1. OOTETRASTICHUS BEATUS Perkins. Genotype.

Ootetrastichus beatus Perkins, 1905, pp. 263-265, pl. xx., fig. 8.

Ootetrastichus beatus Perkins, 1912, pp. 7, 9, 10.

Pale or greenish yellow marked with dark fuscous or black as follows: Two subcontiguous spots on mesonotum in front, extending on to the pronotum and there connected; one at each

posterior angle of pronotum; anterior angles of parapsides and of the axillæ; a line and one or two obscure marks near the tegulæ; propodeum toward the sides; four or five pairs of marginal dots on the abdomen dorsad, the ovipositor and the tip of the tarsi. In certain lights, these dark markings show metallic green. Only slightly variable.

Habitat: Queensland, Australia; Fiji.

Types: (?) In the collections of the Hawaiian Sugar Planters' Association, Honolulu.

2. OOTETRASTICHUS FASCIATIVENTRIS (Girault). Female. Type of *Trichaporoides.*

Light lemon yellow marked with metallic greenish black or purplish as follows: The abdomen with about five transverse stripes and a longitudinal row of three spots on each side, the distal two just distad of the first and second stripes respectively; an inverted subcordate marking at the middle of the cephalic margin of scutum, the dorsal aspect of propodeum, the axillæ and a large spot, just before base (cephalad) cephalo-mesad on each parapside; a short elliptico-transverse, oblique dash just cephalad of the parapside; the distal tarsal joints and the tip of the valves of the ovipositor. Differs from *beatus* in the rather faint abdominal stripes, the wholly purplish propodeum and the solid marking on cephalic scutum.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1786*, Queensland Museum.

3. OOTETRASTICHUS VIRIDITHORAX Girault. Female.

Trichaporoides viridithorax Girault.

Bright metallic green, the abdomen very pale yellow with the centre broadly blackish along the meson from apex proximad a little more than half way to base, this coloration verging to metallic green at apex; a line of blackish around base and down each side (dorsal aspect) for a quarter the length of the abdomen; rather faint cross-stripes on abdomen. Lower half of face yellowish. Hind coxa concolorous, rest of legs pale yellow. Pedicel as long as the third funicle joint.

Habitat: Nelson (Cairns), Queensland. Forest.

Type: No. *Hy 1787*, Queensland Museum.

4. OOTETRASTICHUS FLAVUS (Girault). Female.

Trichaporoides flavus Girault.

Differs from *fasciativentris* in lacking the metallic coloration, in having but four abdominal stripes, in having the pedicel plainly shorter than the distal funicle joint and in being brownish yellow, the thorax obscurely dusky, more especially at cephalic margin of scutum centrally.

Habitat: Babinda (Cairns), Queensland. Jungle.

Type: No. *Hy 1788*, Queensland Museum.

5. OOTETRASTICHUS NYMPHA (Girault). Female.

Trichaporoides nympha Girault.

Differing from *viridithorax* in having the proximal half of the abdomen pale lemon yellow and the entire head the same color; also the hind coxa is yellow like the rest of the legs.

Sides of thorax around wing insertion and the prepectus, pale yellowish. Ocellar area metallic green. Scape yellow, the funicle joints subequal, the first somewhat longest.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1789*, Queensland Museum.

6. OOTETRASTICHUS GROTIUSI new species.

Female:—Length, 1.25 mm.

Bright metallic green, the wings hyaline, the head, legs except the concolorous hind coxa and the black distal tarsal joints, abdomen except distal fourth which is metallic green and three or four cross-stripes of dusky at middle, pale lemon yellow; ocellar area colored somewhat. Sides of pronotum lemon yellow, also the prepectus. First funicle joint distinctly longer than the second which is subequal to the third. A black stripe across between the eyes (but on the occiput?). Allied with *nympha*.

Male:—Not known.

Described from one female captured by sweeping in the forest, July 9, 1913 (A. P. Dodd).

Dedicated to Hugo Grotius.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1790*, Queensland Museum, the above specimen on a tag, the head on a slide.

Another female was captured in a similar situation, August 3, 1913.

7. OOTETRASTICHUS INGHAMENSIS new species.

Female:—Like the preceding (*grotiusi*) but the distal third of abdomen green, the cross-stripes absent, but the distal green continued up each margin to base. Prepectus concolorous and propleura also.

From one female captured by sweeping a boggy meadow, July 17, 1912.

Habitat: Ingham, Queensland.

Type: No. *Hy 1791*, Queensland Museum, the above specimen on a slide.

8. OOTETRASTICHUS LUSTRIS new species.

Female:—Length, 1.25 mm.

Like *sublustris* but the margins of the eyes are yellowish and the scape all dusky, the antennæ differing as follows:—The funicle joints are shorter and stouter, also the club whose two joints are subequal (in *sublustris*, the proximal joint distinctly shorter than the distal); the first funicle joint is not more than twice its width (somewhat over thrice in *sublustris*); the pedicel is subequal to the distal club joint (distinctly shorter than it is in *sublustris*). The three teeth of the mandibles one short but distinct (in *sublustris* the two inner teeth are hardly separated).

Male:—Not known.

Described from one female captured by sweeping in forest, June 27, 1913.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1792*, Queensland Museum. The above specimen on a tag, the head on a slide.

9. OOTETRASTICHUS SUBLUSTRIS new species.

Female:—Length, 1.25 mm.

Differing from the other species in being wholly metallic dark green, the scutum coppery, the legs white except the concolorous hind coxa, the abdomen striped with white due to the white incisions showing; scape white, rest of antennæ black, the first funicle joint longest, not as long as the club, the third funicle joint distinctly longer than the pedicel.

Male:—Not known.

Described from one female captured by sweeping grass in a forest streamlet, July 9, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1793*, Queensland Museum, the above specimen on a slide.

10. OOTETRASTICHUS MISERICORDIA new species.

Female:—Length, 1.05 mm. Slender and with the habitus somewhat of *Gonatocerus*.

Dark aeneous green, the head above the antennæ (including vertex and upper fourth, more or less, of occiput), scape, pedicel and ring-joints and a rather broad band around base of abdomen, pale lemon yellow, also the legs excepting the concolorous hind coxa. Rest of abdomen dusky, submetallic at distal half; rest of antennæ dusky, the first funicle joint a little shorter than the club, the second and third subequal to the pedicel.

Male:—Not known.

Described from one female captured by sweeping jungle along a forest streamlet, June 16, 1913.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1794*, Queensland Museum, the above specimen on a slide.

11. OOTETRASTICHUS CONSIMILIS new species.

Female:—Length, 1.50 mm.

Like *flavus* but the pedicel as long as the distal funicle joint and the pronotum and propodeum are black, the abdomen margined down each side with fuscous nearly to tip and with four cross-stripes of fuscous (no other markings); upper part of occiput transversely fuscous. Distal club joint not greatly longer than the proximal.

Male:—Not known.

Described from one female captured by sweeping the jungle along a forest streamlet, December 1, 1912 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1795*, Queensland Museum, the above specimen on a tag, the head on a slide.

12. OOTETRASTICHUS SILVENSIS new species.

Female:—1.45 mm.

Metallic green, tinged with purple and like *speciosissimus* Girault but the whole head concolorous and excepting for an elliptical spot in centre at base, nearly the proximal half of abdomen all around pale whitish; the legs are white except the concolorous hind coxa (white, however, at distal third); scape white, the flagellum dusky yellow, the first funicle joint distinctly shorter than the club, the pedicel distinctly shorter than the third funicle joint.

Male:—Unknown.

Described from one female captured by sweeping a jungle-edged forest streamlet, January 3, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1796*, Queensland Museum, the above specimen on a slide.

13. OOTETRASTICHUS GUTTATA new species.

Female:—Length, 1.15 mm.

Orange yellow; wings hyaline, other appendages concolorous; cephalic two thirds of axilla, five large subquadrate spots along each side of abdomen and a large oval spot in centre of abdomen at about proximal third, fuscous. First funicle joint not as long as the club but distinctly the longest. Tip of valves of ovipositor black.

Male:—Not known.

Described from a female captured by sweeping low vegetation in the forest on the side of Mount Pyramid, November 21, 1911 (elevation about 500 feet).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1797*, Queensland Museum, the above specimen on a slide.

14. OOTETRASTICHUS SPECIOSISSIMUS new species.

Female:—Length, 1.40 mm.

Metallic purple, the face centrally above antennæ, the mesal margins of each eye, the scape, ring-joints and pedicel, the legs (except the concolorous hind coxa) and somewhat over proximal third of abdomen pale lemon yellow; antennæ blackish, also the pedicel above. The yellowish proximal third of abdomen crossed distad by a cross-stripe of narrow dusky and distad of this stripe, the yellow is narrowed by the short space being margined at each side with purplish. A very narrow stripe, triangularly accented, at immediate base of abdomen. First funicle joint as long as the club, the other two more or less equal (not subequal), the third somewhat shorter than the pedicel.

Male:—Not known.

Described from one female captured by sweeping jungle, May, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1798*, Queensland Museum, the above specimen on a tag, the head on a slide with the type head of *Diaulomella australiensis* Girault.

15. OOTETRASTICHUS SPECIOSUS new species.

Female:—Length, 1.60 mm.

Metallic aeneous green, the mouth, the legs except last two pairs of coxæ, a stripe across base of abdomen broken by a small green triangle at immediate centre of base and a broad stripe down each side (lateral aspect) from base nearly to apex, golden or lemon yellow. Wings hyaline. First funicle joint nearly twice the length of the third. Scape and pedicel suffused with yellow.

Male:—Not known.

Described from one female captured by sweeping in forest, July 9, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1799*, Queensland Museum, the above specimen on a tag, the head on a slide.

16. OOTETRASTICHUS PROSERPINENSIS new species.

Female:—Length, 2 mm. Slender.

Dark metallic aeneous green, the broad wings hyaline, the venation, legs (excepting hind coxæ, the others not seen), head below the antennæ and the scape pale lemon yellow; funicle and club black (antennæ lost before examined under the microscope). A deep orange yellowish spot in centre of abdomen just out from base. Thorax densely sculptured as in *Tetrastichus*, the propodeum with a long median carina, densely polygonally punctate. Last tarsal joint black. Mandibles 4-dentate.

Male:—Not known.

Described from a single female captured on a window, November 4, 1912.

Habitat: Proserpine, Queensland.

Type: No. *Hy 1800*, Queensland Museum, the above specimen on a slide.

TABLE OF THE AUSTRALIAN SPECIES OF *OOTETRASTICHUS* PERKINS.

FEMALES.

I. Wholly metallic dark green (excluding appendages).
Legs except hind coxæ, and the scape white; rest of antennæ black; funicle 3 distinctly longer than the pedicel, funicle 1 longest, thrice longer than wide, not as long as the club. *sublustris* Girault.

II. Metallic green or purple (excluding appendages), marked more or less with yellow.
Thorax entirely metallic.
Abdomen wholly metallic.
Wholly dark metallic green except the margins of the eyes; scape dusky; like *sublustris* but the two club joints subequal, the funicle joints shorter and stouter, funicle 1 twice its width; pedicel subequal to funicle 3. *lustris* Girault.
Abdomen marked more or less with yellow.
Metallic green.
Bright green, the abdomen very pale yellow, the centre from apex broadly blackish along the meson a little more than half way to base and around base and along each side dorsad for the proximal fourth margined with black; pedicel as long as the first funicle joint. Legs pale, except hind coxæ. Faint cross-stripes on abdomen. Lower face yellow. *viridithorax* Girault.

Deep aeneous green; a deep orange yellow spot in centre of abdomen just out from base; legs and face as in preceding species.
proserpinensis Girault.

Aeneous green, the mouth, legs except last two pairs of coxæ, a stripe across base of abdomen and down each side (lateral aspect) from base nearly to apex, golden yellow; funicle 1 nearly twice the length of 3.
speciosus Girault.

The same; the head above the antennæ, scape, pedicel and a rather broad band around base of abdomen pale lemon yellow; also the legs; hind coxa metallic; abdomen dusky verging to metallic distad of middle; joints 2 and 3 of funicle subequal to pedicel. *misericordia* Girault.

The same but tinged with purple; scape, legs (except hind coxa) and nearly proximal half of abdomen whitish; pedicel distinctly shorter than funicle 3. *silvensis* Girault.

(See description of *inghamensis*.)

Metallic purple.

Face above antennæ centrally, mesal margins of eyes, scape, pedicel, legs (except hind coxa) and somewhat over proximal third of abdomen, pale lemon yellow, the yellow of the abdomen crossed distad by a cross-stripe of narrow dusky; funicle 1 as long as the club.
speciosissimus Girault.

Thorax mostly but not wholly metallic.

Hind coxa yellow like the rest of the legs.

Bright green, the head, proximal half of abdomen, sides of thorax around wing insertion and the prepectus, pale lemon yellow. Funicle 1 somewhat the longest. *nympha* Girault.

Hind coxa metallic, not like the rest of the legs.

Bright metallic green, the head, sides of pronotum, the prepectus and proximal three fourths of abdomen pale lemon yellow; abdomen with three or four dusky cross-stripes at middle. Funicle 1 distinctly longer than either 2 or 3 which are subequal. *grotiusi* Girault.

III. Pale lemon yellow or yellowish brown or orange.

Pale yellow marked with metallic green.

Two subcontiguous spots on mesonotum cephalad (extending on to the pronotum and there connected), one on each hind angle of pronotum, cephalic angles of the parapsides and of the axillæ, sides of propodeum and four or five pairs of marginal dots on dorsal abdomen, blackish or metallic. *beatus* Perkins.

An inverted subcordate marking on cephalic scutum, dorsal aspect of propodeum, the axillæ, a large spot on each parapside cephalo-mesad, five transverse stripes across abdomen and three pairs of marginal spots, the distal two just distad of the first and second stripes respectively, metallic greenish or purple.
fasciativentris Girault.

Brownish or orange yellow.

Brownish yellow, the thorax obscurely dusky especially at cephalic scutum centrally; abdomen with four transverse stripes; pedicel plainly shorter than the distal funicle joint. *flavus* Girault.

The same but the pronotum and propodeum black, the abdomen margined down each side with fuscous nearly to tip and with four cross-stripes; pedicel as long as funicle 3. *consimilis* Girault.

Orange yellow, including appendages; cephalic two thirds of axillæ, five large subquadrate spots along each side of abdomen and a large oval spot in centre of abdomen at about proximal third, fuscous. Funicle 1 distinctly the longest but distinctly shorter than the club. *guttata* Girault.

OOTETRASTICHELLA new genus.

Differs from *Ootetrastichus* Perkins in having the abdomen at tip produced into a long slender process, the ovipositor exserted at length; the process above and two thirds the length of the exserted portion of ovipositor which is as long as the abdomen.

Type: The following species.

1. OOTETRASTICHELLA LONGIVENTRIS new species.

Female:—Length, 2.00 mm., excluding the ovipositor which is exserted for a length nearly equal to that of the abdomen.

Brown, the head and body (above, especially mesonotum) with aeneous purplish greenish tinges, the very broad wings subhyaline; scape and legs pale yellowish brown, including the coxæ. Antennæ black, the three funicle joints very long and slender, the last two subequal, the first longer than them nearly as long as the club of which the distal joint is the longer of the two; first ring-joint large (four ring-joints). Pedicel about half the length of joint 2 of the funicle. Face below antennæ yellowish. Abdomen at tip produced into a long slender process nearly two thirds the length of the exserted part of the ovipositor.

Male:—Not known.

From one female captured by sweeping in virgin jungle, December 31, 1911.

Habitat: Australia—Malanda, North Queensland.

Type: No. *Hy 1801*, Queensland Museum, the above specimen on a tag, the antennæ and fore wings on a slide.

Genus TRICHAPOROIDELLA Girault.*

Differs from *Ootetrastichus* Perkins in having the club solid and in bearing but three ring-joints. Scutum simple.

1. TRICHAPOROIDELLA AENEA Girault. Female. Genotype.

Dark metallic green, the wings hyaline, the legs lemon yellow, the coxa metallic at base; antennæ black, the scape and pedicel with some yellow; funicle 1 subequal to the long club; propodeum with a median carina.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1802*, Queensland Museum.

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* See p. 241, footnote.

2. TRICHAPOROIDELLA DECORA new species.

Female:—Length, 2.10 mm.

Wholly dark metallic green excepting face below antennæ (and the corresponding part of occiput), margins of eyes on vertex narrowly, the scape (except along upper edge) and legs (except hind coxa) which are lemon yellow (also pedicel slightly beneath). Club slightly longer than the first funicle joint which is over one and a half times longer than the pedicel, the latter distinctly shorter than the third funicle joint, two thirds (about) the length of the club. Propodeum with a median carina, densely scaly, rougher than the usual fine sculpture of rest of thorax.

Male:—Not known.

Described from one female captured by sweeping grass along a forest streamlet, August 7, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1803*, Queensland Museum, the above specimen on a tag, the head on a slide.

3. TRICHAPOROIDELLA SUBAENEA new species.

Female:—Length, 1.25 mm.

Like *aenea* but the lower part of the face, an ovate spot in the centre of the abdomen at base and the abdomen at proximal fifth beneath, golden yellow. Propodeum densely scaly.

Male:—Not known.

Described from one female captured by sweeping in forest, July 9, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1804*, Queensland Museum, the above specimen on a tag, the head on a slide.

4. TRICHAPOROIDELLA DUBIA new species.

Female:—Length, 2.30 mm.

Like *aenea* but the face below antennæ yellow; propodeum as in *decora*, punctate but the surface no coarser in grain than the scaly scutellum. Median carina well developed and as in *decora*. One mandible bidentate, the second tooth broadly truncate, the other the same, but a scooped-out portion intervenes between the two teeth and the second tooth is only slightly broad at apex and there obliquely truncate. In *decora* both mandibles are tridentate, the two outer teeth acute and distinct; in *subaenea* they are about the same. Spiracle small, round, over its own width from the postscutellum; no lateral carina. The legs are intense lemon yellow while those of *decora* are pale. Tips of coxæ yellow.

Male:—Not known.

Habitat: Ayr, Queensland. Forest.

Type: No. *Hy 1805*, Queensland Museum, the above specimen on a tag, the head on a slide.

5. TRICHAPOROIDELLA ELEGANTA new species.

Female:—Length, 1.30 mm.

Golden yellow, the propodeum, all of scutum except lateral margins, scutellum between the first grooves (median line broadly nearly to first grooves), meson of pronotum broadly, cephalic half or less of each parapside, over cephalic half of each axilla (except a small space centre of cephalic margin) and the margins of abdomen brokenly along slightly over cephalic half, dark metallic green; also thorax just laterad of each axilla and a spot on abdomen at meson dorsad at distal three fourths; abdomen with about four dusky cross-stripes along the margined proximal part and an obscure fifth one across at the isolated spot. Tip of ovipositor valves black. Propodeum scaly. Antennæ dusky; funicle 1 longest, 3 much shorter, slightly longer than the pedicel; club with a stout nipple, more or less equal to joint 1 of funicle. Wings hyaline. Mandibles tridentate. Propodeum without true lateral carinæ.

Male:—Not known.

Described from one female captured by sweeping in forest, February 20, 1913 (A. P. Dodd). A second specimen was seen later.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1806*. Queensland Museum, the above specimen on a tag, the head on a slide.

GENUS SELITRICHODELLA Girault.

Antennæ 7-jointed with one ring-joint, the club solid. Scutum with a median sulcus, the scutellum with four grooves. Propodeum tricarinate, the spiracle minute, round. Male antennæ 8-jointed, the funicle 4-jointed.

1. SELITRICHODELLA MIRA Girault. Female, male. Genotype.

Metallic purple, the abdomen light lemon yellow with a broad purplish stripe down each side from base to distal third or fourth. Appendages yellow, the wings hyaline. Distal two funicle joints subequal, longest of the funicle.

In the males the distal third of abdomen is purple, the marginal stripe absent.

Habitat: Nelson (Cairns), Queensland. Forest.

Type: No. *Hy 1807*, Queensland Museum.

2. SELITRICHODELLA ACUMINATA new species.

Female:—Length, 1.55 mm.

Purplish black, the wings hyaline; lateral margins of scutum narrowly, scutellum laterad of first groove and distal half or more, parapsides, cephalic portion of axilla, the legs and antennæ pale lemon yellow. Scutum very long; propodeum with a short, broad median carina. Abdomen long and conical, sordid yellowish. Flagellum dusky yellow, the funicle joints subequal, all somewhat longer than wide, combined longer than the club which bears a small nipple-like spine at tip; pedicel slightly shorter than the funicle joints. Mandibles tridentate.

Male:—Not known.

Described from a female captured by sweeping in forest near the banks of Cape River, January 8, 1913.

Habitat: Capeville (Pentland), Queensland.

Type: No. *Hy 1808*, Queensland Museum, the above specimen on a tag, the head on a slide.

Genus NEOMPHALOIDES Girault.

Scutum with a median groove, the scutellum with four; propodeum with a pair of median carinæ. Antennæ 11-jointed with three ring-joints, the club 3-jointed; abdomen distad produced into a moderately long stylus.

1. NEOMPHALOIDES CINCTIVENTRIS Girault. Female. Genotype.

Dark metallic green, the thorax bronzy, the abdomen above at base with a broad orange band; legs, ventral half of occiput and face and the cheeks, pale yellow; scape and pedicel brownish, rest of antenna black. Wings hyaline. Vertex yellowish along the eye margins. Funicle joints elongate, also the pedicel which is subequal to funicle 3; funicle 1 nearly as long as the club.

Habitat: Sydney, New South Wales.

Type: No. *Hy 1197*, Queensland Museum.

Genus SELITRICHODES Girault.

Antennæ 8-jointed with two ring-joints, the club solid; scutum simple, the scutellum with a narrow groove along each side of the meson.

1. SELITRICHODES FASCIATIVENTRIS Girault. Female. Genotype.

Lemon yellow, the dorsal abdomen with two transverse black stripes across it both interrupted at the meson; a black marginal spot at base on each side. Appendages concolorous, the wings hyaline. Pedicel longer than any of the funicle joints.

Habitat: New South Wales.

Types: No. *Hy 1198*, Queensland Museum.

2. SELITRICHODES VARIGATUS new species.

Female:—Length, 1.15 mm.

Honey yellow, the legs concolorous, the wings hyaline; two triangular spots on the face of the pronotum, the propodeum and three transverse stripes across the abdomen just before middle, black. Scutum on each side of meson, brownish. Antennæ dusky yellow, the pedicel longer than any of the funicle joints. Scutellum with four grooved lines; scutum simple. Mandibles 4-dentate.

Male:—Not known.

Described from a single female captured by sweeping in forest, August 17, 1912.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1909*, Queensland Museum, the above specimen on a tag, the head on a slide.

3. SELITRICHODES FLAVA new species.

Female:—Length, 1.20 mm.

Pale lemon yellow, the wings hyaline; a minute black dot just mesad of insertion of fore wing and another on each lateral angle of pronotum; otherwise immaculate. Mandibles tridentate. Otherwise as in *varigatus*.

Male:—Not known.

Described from one female captured by sweeping in open forest, April 18, 1912.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1810*, Queensland Museum, the above specimen on a tag.

GENUS TETRASTICHOMORPHA Girault.

Differing from *Tetrastichus* Haliday in that the club is solid and there are four ring-joints.

1. TETRASTICHOMORPHA FLAVA Girault. Female. Genotype.

Cadmium yellow, the abdomen lemon yellow, also the legs, scape and pedicel; a black marginal stripe on dorsal abdomen from base a little over a third the distance to apex; extreme apex of each parapside, black. Funicle 1 four or more times longer than wide, subequal to the club.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1811*, Queensland Museum.

2. TETRASTICHOMORPHA BICOLOR new species.

Female:—Length, 1.20 mm.

Brownish black, the wings hyaline, the hind margins of the eyes, the vertex, the mesal margin of each parapside (except cephalad) and the antennæ yellowish white, also the legs (except coxæ and hind femora) and sutures of thoracic pleura. Funicle joints all a little longer than wide, subequal to the pedicel.

Male:—Not known.

Described from two females captured by sweeping in the forest, April 9, 1913.

Habitat: Nelson (Cairns), Queensland.

Types: No. *Hy 1812*, Queensland Museum, the above specimens on a tag, the heads on a slide with the type head of the following species.

3. TETRASTICHOMORPHA PARTISCUTELLUM new species.

Female:—Length, 1.15 mm.

The same as the preceding species but the median line of scutum and the four grooved lines of scutellum are white also.

Male:—Not known.

Described from a single female captured with the preceding species.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1813*, Queensland Museum, the above specimen on a tag, the head with the type appendages of *bicolor*.

Genus NEOTETRASTICHODES Girault.

Differing from *Tetrastichodes* Girault in bearing four ring-joints; funicle 3-jointed.

1. NEOTETRASTICHODES FLAVUS Girault. Female. Genotype.

Light orange yellow, the appendages concolorous, the wings hyaline; middle of face and dorsum of abdomen obscurely dusky; funicle joints subequal, each slightly shorter than the pedicel. Male abdomen dusky with a white area at base; the male funicle is 4-jointed, the last joint longest, the antennæ with long hairs.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1814*, Queensland Museum.

2. NEOTETRASTICHODES AENEUS new species.

Female:—Length, 1.35 mm. Short and stout, the abdomen globular.

Dark metallic green, the wings hyaline; coxæ dusky, the legs pale yellowish except the dusky hind femur; antennæ dusky yellowish, the long pedicel black, the scape compressed, the three funicle joints stout, subequal, subquadrate, each distinctly shorter than the elongate pedicel. With the usual fine tetrastichine sculpture.

Male:—Not known.

Described from a single female captured by sweeping in forest, August 4, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1815*, Queensland Museum, the above specimen on a tag, the head on a slide.

Another female was obtained the following day in the same place. This species differs from the type species in having a short propodeum and globular abdomen.

3. NEOTETRASTICHODES CANDIDUS new species.

Female:—Length, 1.60 mm.

Brilliant metallic green, the legs except last two pairs of coxæ intense lemon yellow, the wings hyaline. Like *aenea* structurally but the distal two funicle joints distinctly wider than long, joint 1 distinctly longer than them, subquadrate. The elongate pedicel orange. Mandibles 4-dentate, the first two teeth apparently minute and shortest. Scape enlarged at apex and with a coarse scaly sculpture.

Male:—Not known.

Described from one female captured by sweeping in forest, September 12, 1913 (A. P. Dodd.)

Habitat: Kuranda, Queensland.

Type: No. *Hy 1816*, Queensland Museum, the above specimen on a tag, the head on a slide.

The two species *aeneus* and *candidus* have short propodeums, the abdomen short and globular, the scape more or less distinctly enlarged and with a coarse scaly sculpture

(*candidus*), the pedicel elongate. They form at least a subgenus. Their ring-joints are large and distinct like those in the Pteromalidæ. In *aeneus*, the scape is compressed along the middle and without coarse scaly sculpture, while in the third species it is enlarged at apex and coarsely scaly. The species *candidus* has a more distinct terminal nipple on the club than has *aeneus* (type antennæ of both species re-examined).

Genus EPITETRASTICHUS Girault.

Synonym: *Pentastichodes* Girault.

Differs from *Tetrastichus* Haliday in bearing *four* ring-joints; the propodeum is variable, sometimes very short, with a short median carina, the abdomen conic-ovate, the form robust. (Type species re-examined.)

1. EPITETRASTICHUS SPECIOSISSIMUS Girault. Female. Genotype.

Golden yellow, characteristically marked with black, thus: A large obconical area from cephalic margin of scutum to proximal third of scutellum; most of interior of each axilla; a triangular spot at cephalo-mesal margin of parapside, lateral pronotum, propodeum, much of mesopleurum and sides of propodeum and six broad stripes across the abdomen, each stripe with a large, roundish yellow spot centrally on each side of meson, forming a paired longitudinal row (six pairs, the fifth largest); vertex and centre of occiput. Funicle 1 longer than the pedicel, joint 3 shorter than it. First ring-joint distinct, the others transverse-linear.

Habitat: Babinda and Nelson (Cairns), Queensland. Grass and forest.

Type: No. *Hy 1817*, Queensland Museum.

A female was captured at Nelson by sweeping in forest, August, 1913.

2. EPITETRASTICHUS FLAVIPOSTSCUTELLUM (Girault). Female. Type of *Pentastichodes* Girault.

Pentastichodes flavipostscutellum Girault.

Black, the postscutellum and all of abdomen except tip of ovipositor valves, lemon yellow, also the legs and antennæ (coxæ not seen). Funicle 1 subequal to the pedicel, the distal two joints subequal; mandibles tridentate. Propodeum with a median carina, scaly.

Habitat: Capeville (Pentland), Queensland.

Type: No. *Hy 1818*, Queensland Museum.

A second female of this species has been seen, captured with the type specimen.

3. EPITETRASTICHUS LONGFELLOWI new species.

Female:—Length, 1.30 mm.

Dark metallic green, the wings hyaline, the legs including coxæ, scape and pedicel, orange yellowish, the rest of antenna black. Sculptured finely as in *Tetrastichus*. Cephalic femur fuscous, the cephalic coxa concolorous. Ring-joints yellowish, the first funicle joint elongate, as long as the club, a third longer than the pedicel, second and third each in turn distinctly shorter, the third subequal to the long pedicel, half or more the length of the club;

the latter paler toward tip. Reticulation of propodeum coarser or less dense. Abdomen yellowish at extreme base. Propodeum with two narrow median carinæ, paired but diverging widely at about the middle. *Abdomen with a short petiole which is distinct.*

Male:—Not known.

Described from two females captured by sweeping in jungle country, June, 1913 (F. P. Dodd).

Habitat: Kuranda, Queensland.

Type: No. *Hy 1819*, Queensland Museum, one of the above specimens on a tag, the head on a slide with the type appendages of *Eurydinotella viridicoxa* Girault.

Respectfully dedicated to H. W. Longfellow.

4. EPITETRASTICHUS RUFISCUTELLUM new species.

Female:—Length, 1.65 mm.

Black, the abdomen dusky, suffused with yellowish across extreme base and with some more or less obscure cross-stripes of black, the distal third of scutum, the scutellum, parapsides except at cephalic apex, caudal third of each axilla and the tegulæ deep orange yellow; face ventrad yellowish, also the vertex more or less. Legs lemon yellow; pronotum laterad and extreme cephalo-lateral angle of scutum, orange yellow. Scape yellowish, the rest of antennæ dusky, the funicle joints ovate, the first a little the longest, subequal to the pedicel which is of usual length. Antennæ with five (?) ring-joints. Mandibles 3-dentate. Club with a prominent nipple.

Male:—Not known.

Described from one female captured by sweeping along a jungle-edged forest streamlet. April 14, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1820*, Queensland Museum, the above specimen on a tag.

5. EPITETRASTICHUS FULVIPOSTSCUTELLUM new species.

Female:—Length, 2.25 mm. Robust.

Dark metallic green, the postscutellum bright lemon yellow; tegulæ, legs (except coxæ at basal half), scape and pedicel (except above), yellow; antennæ black, funicle 1 longest, elongate but not as long as the club whose proximal joint is a little longer than the pedicel but distinctly shorter than funicle 3. Propodeum with a short median carina which forks at each end. Wings hyaline. Lateral carina near (mesad) the spiracle, curving caudo-laterad to the carinated caudal margin, then looping back to the other side of the spiracle.

Male:—Unknown.

Described from one female captured by sweeping in forest, November 6, 1913.

Habitat: Ayr, Queensland.

Type: No. *Hy 1821*, Queensland Museum, the above specimen on a tag, the head on a slide (and a tag with the variety *purpurus*).

A second female captured at the same time differed in being dark metallic purple. I name it the variety *purpureus* and deposit it with the type of the species; a second female of the variety had the groove of scutum only at distal fourth!

6. EPITETRASTICHUS TRIFASCIATUS new species.

Female:—Length, 2.05 mm.

Honey yellow, the wings hyaline, the scutum reddish; tip of valves of ovipositor black; abdomen margined along each side with black from base to distal two thirds just within the proximal half crossed by three black stripes. Antenna with four ring-joints, black, the pedicel rather long, subsequal to the distal joint of funicle. Mandibles tridentate. Propodeum short at meson, the caudal margin strongly carinate and the median carina quadrate. Abdomen long, conic-ovate.

Male:—Not known.

Described from a single female captured by sweeping in the jungle, July 13, 1913.

Habitat: Harvey's Creek (Cairns district), Queensland.

Type: No. *Hy 1822*, Queensland Museum, the above specimen on a tag, the head on a slide.

7. EPITETRASTICHUS NYMPHA new species.

Female:—Length, 2.00 mm.

Agreeing with the description of *longfellowi* but the pedicel nearly concolorous with the rest of the antenna, the abdomen is not yellowish at extreme base and the propodeum has a single, distinct median carina which forks at apex. Pronotum and scutum with obscure thimble punctures.

Male:—Not known.

Described from one female captured from herbage, April 6, 1913 ("6.4.13," H. Hacker).

Habitat: Brisbane, Queensland.

Type: No. *Hy 1820*, Queensland Museum, the above specimen on a tag, the head on a slide.

8. EPITETRASTICHUS NIGRIVENTRIS new species.

Female:—Length, 1.65 mm.

Orange yellow, the abdomen and middle of occiput black; flagellum dusky black, the proximal half of the scape yellowish. Mandibles tridentate. Legs orange yellow; face of pronotum black; wings hyaline. First funicle joint only slightly longer than the other two, all cylindrical-oval and not much longer than wide. First ring-joint apparently divided into two transverse ones (making five in all). Propodeum with a short median carina, the lateral carinæ running directly from the rather large oval spiracle. Abdomen pointed, conic-ovate.

Male:—Not known.

Described from a single female captured by sweeping in a jungle, July 13, 1913.

Habitat: Harvey's Creek, Nelson and Kuranda (Cairns), Queensland.

Type: No. *Hy 1824*, Queensland Museum, the above specimen on a tag, the head on a slide.

Later, a second female was captured August 1, 1913, at Nelson, N.Q., by sweeping jungle growths along a forest streamlet and a third in September, jungle, Kuranda (A. P. Dodd).

TABLE TO THE AUSTRALIAN SPECIES OF *EPITETRASTICHUS* GIRAULT.

FEMALES.

Metallic green or purple species.

Dark metallic green, all of legs (except first coxa) scape and pedicel orange yellow; rest of antenna black; funicle 3 subequal to pedicel, joint 1 subequal to the club; abdomen yellowish at extreme base; propodeum with a pair of widely diverging median carinæ. *longfellowi* Girault.

The same but pedicel nearly black, the abdomen without yellow; propodeum with a single median carina which forks at apex. *nympha* Girault.

Whole body dark metallic green or purple, the postscutellum, legs (except bases of coxæ), tegulæ, scape and pedicel lemon yellow; funicle 3 longer than pedicel; propodeum with a median carina and a lateral carina just mesad of the spiracle which at apex loops back to the lateral side of spiracle. *fulvipostscutellum* Girault.

Black species.

Postscutellum, abdomen except tip of ovipositor valves, legs and antennæ, pale lemon yellow. Funicle 1 subequal to pedicel. *flavipostcutellum* Girault.

Distal third of scutum, scutellum, parapsides except cephalad, caudal third of axillæ, deep orange; abdomen dusky, suffused with yellowish at extreme base; vertex and ventral face orange, also extreme latero-cephalic angle of scutum and sides of pronotum; legs yellow. Funicle 1 subequal to pedicel. *rufiscutellum* Girault.

Golden or honey yellow species.

Golden yellow; a large, obconical area from cephalic margin of scutum to proximal third of scutellum, most of axillæ, propodeum and six broad stripes across abdomen each stripe with a yellow spot in it on each side of meson centrally, black. Funicle 1 longer, funicle 3 shorter, than the pedicel. *speciosissimus* Girault.

Honey yellow; scutum reddish; abdomen along each margin from base to distal two thirds, tip of valves of ovipositor and three cross-stripes on abdomen within proximal half, black; funicle 3 subequal to pedicel; median carina quadrate. *trifasciatus* Girault.

Orange yellow; abdomen, middle of occiput, flagellum, distal half of scape and face of pronotum, black; funicle joints not much longer than wide; lateral carina running directly from the spiracle. *nigriventris* Girault.*

GENUS QUADRASTICHUS Girault.

Synonym: *Epichrysocharis* Girault.

Differs from *Pentastichus* Ashmead in bearing short marginal cilia on the fore wing, the antennæ 8-jointed with one ring-joint, the club 2-jointed. Abdomen depressed, ovate, the ovipositor not exserted.

1. QUADRASTICHUS NIGRINOTATUS Girault. Female. Genotype.

Canary yellow; the wings hyaline; meson of pronotum, meson of scutum centrally (divided along median line), outer lateral angle of pronotum, apices of axillæ, median line of

* *Xanther*, p. 205.

propodeum and three broken stripes (distinct laterad) across abdomen out from base, dusky black. Scape, pedicel and legs concolorous, rest of antenna dusky yellow. Second funicle joint longest, joint 1 shortest of the funicle, longer than wide, subequal to the pedicel. Mandibles tridentate. Club with a spinelike seta.

Habitat: Mittagong, New South Wales.

Type: No. *I. 1230,* South Australian Museum, Adelaide.

2. QUADRASTICHUS LATITHORAX new species.

Female:—Length, 1.15 mm.

This species is like *Pentastichus* Ashmead but the antennæ 8-jointed with one distinct ring-joint, the club only two-jointed, the pedicel not much longer than the first funicle joint, rather subequal to it, all the funicle joints longer than wide. Body very short and stout, with a peculiar habitus, resembling somewhat a *Hadronotus*, the abdomen very short, flat, triangular. Mandibles bidentate, the inner tooth broadly truncate. Otherwise as in *Tetrastichus* Haliday. Marginal cilia short. Purple-black, the antennæ and legs lemon yellow, also the abdomen but in the dorsal aspect margined all around (apically broadest) rather broadly with purple-black. Wings hyaline. Sculpture of thorax like that of *Tetrastichus* but exceedingly fine. Pedicel black above near base. Distal club joint a little the longer, with a short nipple, the funicle joints subequal.

Male:—Not known.

Described from a single female captured by sweeping foliage of lantana and other trees in an open field near town, October 21, 1911.

Habitat: Mackay, Queensland.

Type: No. *Hy 1825,* Queensland Museum, the above specimen on a slide.

3. QUADRASTICHUS SANNIO new species.

Female:—Length, 1.60 mm.

Like the preceding but much larger and normal, the tibiæ ringed with purple just below knees, the antennæ sooty, the club white, its two joints coalesced or nearly. Mandibles tridentate. Scape pale, purple along dorsal edge; pedicel purple.

Male:—Not known.

Described from one female captured by sweeping in forest, July 3, 1913.

Habitat: Nelson (Cairns), Queensland.

Type: No *Hy 1826,* Queensland Museum, the above specimen on a tag, the head on a slide.

4. QUADRASTICHUS AENEUS new species.

Female:—Length, 1.00 mm., excluding valves of ovipositor which are exserted for a third of the length of the abdomen.

Dark metallic green, the wings hyaline; coxæ and proximal parts of the femora concolorous, the rest of the legs pale straw yellow. Sculpture as in *Tetrastichus*; propodeum finely transversely rugulose, the median carina apparently absent. Antennæ brownish black, the three funicle joints subequal, each a little longer than wide. Mandibles tridentate.

Male:—Not known.

Described from one female captured by sweeping in forest, July 9, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1827*, Queensland Museum, the above specimen on a tag, the head on a slide.

5. QUADRASTICHUS FUSCA (Girault). Female.

Epichrysocharis fusca Girault.

Dusky yellow, the scutum yellow; legs and antennæ pale yellow; wings hyaline. Pedicel longer than any of the funicle joints, the second of the latter smallest, transverse, ringlike, the first longest but wider than long. Ring-joints very minute. Fore wings densely ciliate. Impunctate. Type re-examined.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1828*, Queensland Museum.

The mandibles are tridentate; club with no nipple, the distal joint twice the length of the proximal.

Genus QUADRASTICHODES Girault.

Differs from *Tetrastichodes* Ashmead in having the antennæ 13-jointed, four funicle and ring-joints, the third club joint conelike but articulated; scape enlarged distad, clavate and together with the pedicel with a coarse scaly sculpture. Propodeum with a median carina; postmarginal vein three fourths the length of the stigmal.

1. QUADRASTICHODES CYANEIVIRIDIS Girault. Female. Genotype.

Brilliant metallic blue-green; wings hyaline; legs straw yellow, the coxæ metallic; femora darkened proximad; pedicel as long as funicle 1 which is longest of the funicle, much longer than wide (about two and a quarter times); joint 1 of club somewhat longer than wide, subequal to funicle 3.

Habitat: Port Lincoln, South Australia.

Types: No. *I. 1231*, South Australian Museum, Adelaide.

Genus NEOMPHALOIDELLA Girault.

Synonym: *Eulophotetrastichus* Girault.

Like *Neomphaloides* Girault but the funicle joints usually shorter, the three ring-joints uneven, the abdomen depressed and broadly ovate, the propodeum usually with a single median carina. The synonymic genus was erroneously described, the scutum with but a single groove.

1. NEOMPHALOIDELLA FASCIATIVENTRIS Girault. Female. Genotype.

Black, the wings hyaline; face and cheeks, lateral margins of scutum rather broadly, occipital angles of vertex, cephalic third of parapsides, all margins of scutellum (except cephalic), postscutellum, legs except base of coxæ, antennæ and more or less obscure transverse stripes across the abdomen, lemon yellow. Funicle joints subquadrate, joint 1 slightly longest.

Habitat: King Island, Tasmania.

Type: No. *I. 1223*, South Australian Museum, Adelaide.

2. NEOMPHALOIDELLA IO (Girault). Female. Genotype of *Eulophotetrastichus*.

Eulophotetrastichus io Girault.

Black, the wings hyaline, the scutellum and apex of scutum contrasting orange yellow, the postscutellum, abdomen and legs (except coxæ at base), lemon yellow, the abdomen conspicuously margined with black from base to apex (dorsad and ventrad), the dorsal meson broadly yellow. Scape and pedicel pale. Propodeum with a short, stout median carina which tapers distad; joint 1 of funicle longest, joint 3 much longer than the pedicel.

Habitat: Kuranda, Queensland. Jungle.

Type: No. *Hy 1829*, Queensland Museum.

3. NEOMPHALOIDELLA FUSCA (Girault). Female.

Neomphaloides fusca Girault.

Yellow-brown; the funicle and club black; a row of dark spots down each side of abdomen; funicle joints thrice longer than wide, the club with a long spur; pedicel half the length of funicle 1; wings narrow, the marginal fringes longer than usual.

Habitat: Nelson (Cairns), Queensland. Forest.

Type: No. *Hy 1830*, Queensland Museum.

4. NEOMPHALOIDELLA SILVENSIS new species.

Female:—Length, 2.50 mm.

Jet black; distal third of scutum and along each lateral margin, parapsides, sides and venter of thorax except prothorax, tegulæ and axillæ deep orange yellow; abdomen deep lemon yellow except the black of distal third, edged from base on each side with black, conspicuously in the dorsal aspect. Legs concolorous with abdomen. Ovipositor not exserted. Face near mouth and scape except tip, yellow, rest of antenna black, the first funicle joint very long, as long as the very long club, the other two more or less equal, a third shorter but much longer than the long pedicel. Mandibles tridentate.

Male:—Not known.

Described from one female captured by sweeping in a jungle pocket, August 7, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1831*, Queensland Museum, the above specimen on a tag, the head on a slide.

5. NEOMPHALOIDELLA WESTWOODI new species.

Female:—Length, 1.50 mm.

Jet black, the wings hyaline, the abdomen reddish brown, its margin and distal third fuscous; coxæ black, rest of legs concolorous with the abdomen; propodeum with two short diverging median carinæ at distal half at the middle meeting a basal carina-loop. Mandible tridentate. Scape yellowish beneath, the antennæ otherwise black, the first funicle joint one and a half times longer than broad, subequal to the pedicel, the other two funicle joints each shortening, the third somewhat longer than wide; nipple very short; the club joints not quite as long as the distal funicle joint. Propodeum and rest of thorax polygonally reticulated.

Male:—Not known.

Described from three females captured amongst undergrowth, April 26, 1913 (H. Hacker). Dedicated to John Obadiah Westwood.

Habitat: Brisbane, Queensland.

Type: No. *Hy 1832*, Queensland Museum, the above specimens on a tag, two antennæ and a head (fragments) on a slide.

6. NEOMPHALOIDELLA SANNIO new species.

Female:—Length, 1.70 mm.

Like *fasciativentris* but the face yellow only below antennæ, the distal fourth of scutum lemon yellow, the lateral margin of each parapside the same color and only the distal halves of the lateral margins of scutellum. The antennæ are dusky, the club not quite as long as the funicle, the pedicel rather long, longer than any of the funicle joints, the first of the latter rather distinctly longer than the second.

Male:—Not known.

Described from one female captured by sweeping in the forest, July 9, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1833*, Queensland Museum, the above specimen on a tag, the head and fore legs on a slide.

TABLE OF THE SPECIES OF *NEOMPHALOIDELLA* Girault.

Black species.

Scutellum mostly or all black; legs yellow.

Scutellum all black.

Distal third of scutum and each lateral margin, parapsides, sides and venter of thorax except prothorax, tegulæ and axillæ, orange yellow; abdomen lemon yellow margined from base to apex with black, the distal third black; mouth and scape yellow; pedicel long but shorter than funicle 3, funicle 1 very long, as long as the club. *silvensis* Girault.

Abdomen reddish brown, the scape yellow beneath; abdomen margined with fuscous, its distal third fuscous; coxæ black; funicle 1 subequal to pedicel. *westwoodi* Girault.

Scutellum margined with yellow.

Face and cheeks, lateral margins of scutum, occipital angles of vertex, cephalic third of parapsides, margins of scutellum (except cephalic), postscutellum, antennæ and obscure stripes across the abdomen, lemon yellow; funicle joints subquadrate. *fasciativentris* Girault.

Face below antennæ, distal fourth of scutum, lateral margin of parapside and distal half of each lateral margin of scutellum, lemon yellow. *sannio* Girault.

Scutellum wholly orange yellow.

Apex of scutum orange yellow; postscutellum, abdomen and legs lemon yellow; margins of abdomen conspicuously black from base to apex; scape and pedicel pale; propodeum with a short, broad, median carian which tapers distad; joint 3 of funicle much longer than the pedicel. *io* Girault.

Yellow-brown species.

Funicle and club black; a row of dark spots down each side of abdomen; funicle joints thrice longer than wide, the club with a long spur; pedicel half the length of funicle 1; wings narrow. *fusca* Girault.

Genus QUADRASTICHODELLA Girault.

Scutum with a median groove; antennæ with four ring-joints; scape clavate and coarsely scaly. Otherwise as in *Tetrastichus* Haliday.

1. QUADRASTICHODELLA BELLA Girault. Female. Genotype.

Brilliant metallic green, the legs (except hind coxa), tegula and scape lemon yellow; rest of antenna dark brown; pedicel longest of the flagellum, joints 2 and 3 of funicle wider than long, joint 1 longer than wide. Propodeum glabrous in dorsal aspect.

Habitat: Lawson, New South Wales.

Type: No. *I. 1234,* South Australian Museum.

2. QUADRASTICHODELLA AENEA new species.

Female:—Length, 2.50 mm. Robust.

Metallic aeneous purplish, the wings hyaline, the legs including coxæ lemon yellow; hind coxa concolorous. Antennæ brownish black, the scape yellow, the pedicel elongate, much longer than any of the following joints, the first funicle joint barely longer than wide, the other two subequal, wider than long. Mandibles tridentate. Postmarginal vein over half the length of the rather short stigmal. Club as long as the funicle. Propodeum densely scaly, with a short median carina meeting a semicircular carina at apex. Evidently like the type of the genus but differing in general coloration and the scaly dorsal aspect of the propodeum. Hind tibial spur single.

Male:—Not known.

Described from one female captured by sweeping in jungle pocket, July 21, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1834,* Queensland Museum, the above specimen on a tag, the head and hind legs on a slide.

Genus TETRASTICHELLA Girault.

Differing from *Tetrastichus* Haliday in bearing three ring-joints in the antennæ, the club only 2-jointed. Postmarginal vein usually developed.

1. TETRASTICHELLA FUSCIPENNIS Girault. Female. Genotype

Metallic green; scutum laterad and caudad, the scutellum and the base of each axilla more broadly, margined with yellow; a yellow spot in each parapside at base. Fore wings infuscated from base of marginal vein distad to about three fourths the distance from apex of stigmal vein to apex of blade, the fumated area narrowing distad. Oral area yellowish. Pedicel longer than any of the funicle joints of which 2 is largest. Club without a nipple.

Habitat: Murray Bridge, South Australia.

Type: No. *I. 1348,* South Australian Museum, Adelaide.

2. TETRASTICHELLA NOVIFASCIATUS (Girault). Female.

Tetrastichus fasciatus Girault.

Lemon yellow, the abdomen darker, the wings hyaline; centre of scutum with a round fuscous spot on each side of meson; pronotum cephalad, parapsidal furrows and suture between scutum and scutellum black; also lateral margin of scutellum more broadly; abdomen with from six to seven black cross-stripes. Appendages concolorous, the antennæ more or less dusky. Propodeum and cephalic half of scutum centrally darker. Funicle joints more or less quadrate. Two club joints, three ring-joints. Pedicel twice the length of any of the funicle joints. (Type antennæ re-examined.)

Habitat: Queensland (? Brisbane). Forest.

Types: No. *Hy 1201*, Queensland Museum.

3. TETRASTICHELLA ACUMINATIVENTRIS new species.

Female:—Length, 1.70 mm., including the ovipositor which is exserted for a third the length of the abdomen, the latter nearly twice the length of the thorax.

Very dark metallic bluish, the wings hyaline; distal third of first two pairs of femora, knees, tibiæ and tarsi yellow, the rest of the legs concolorous; antennæ dusky yellowish, the first ring-joint large, distinct, the other two extremely short but easily found, the funicle joints longer than wide, subequal to each other and to the pedicel; first club joint much shorter than the second which bears a small nipple. Mandibles tridentate. Postmarginal vein absent. Characterized by the slender abdomen and the longly exserted ovipositor.

Male:—Not known.

Described from two females captured by sweeping in forest, August 4, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1835*, Queensland Museum, the above specimen on a tag together, their heads together on a slide.

4. TETRASTICHELLA HAECKELI new species.

Female:—Length, 1.00 mm.

Deep golden yellow, the legs and antennæ concolorous, the wings hyaline; scutum interiorly except the margins and median line, median line of scutellum broadly (almost to first groove), axillæ centrally to apex, parapside along mesal margin and pronotum broadly along each side of the narrow yellow meson, embrowned. Propodeum laterad, a small round spot on pronotum just cephalad of the parapsidal furrows and five or six narrow stripes across abdomen black or dark fuscous. Propodeum with a median carina. Pedicel stout, over twice the length of any of the funicle joints which are subequal and only slightly longer than wide. Mandibles tridentate. Postmarginal vein absent.

Male:—Not known.

Described from one female captured by sweeping undegrowth, mostly eucalypts, April 30, 1913 (H. Hacker).

Habitat: Brisbane, Queensland.

Type: No. *Hy 1836*, Queensland Museum, the above specimen on a tag, the head and a fore wing on a slide.

5. TETRASTICHELLA HYALINA new species.

Female:—Length, 1.00 mm.

Dark metallic purple, the wings subhyaline, the legs concolorous excepting most of front femora, the knees, tibiæ and tarsi which are lemon yellow. Postmarginal vein absent. Antennæ lemon yellow suffused with dusky, the three funicle joints more or less subquadrate and no longer than the pedicel; club with a small terminal seta.

Male:—Unknown.

Described from five females captured by sweeping miscellaneous flowers in a garden, February 18, 1913.

Habitat: Ripple Creek and Halifax, Queensland.

Type: No. *Hy 1837*, Queensland Museum, three of the above specimens on a slide with detached heads.

Several days later, three females by sweeping grass along a road at Halifax.

GENUS APROSTOCERELLA Girault.

Differs from *Tetrastichella* Girault in that there are four ring-joints.

1. APROSTOCERELLA KELLOGGI Girault. Female. Genotype.

Honey yellow, the wings hyaline, the abdomen with three to five black cross-stripes from base; the propodeum, a large triangular spot on each side of meson of scutum (cephalic half), pronotum and a crescentic bar across dorsal half of occiput, black or purplish black. Scape pale; antennæ black, the first funicle joint slightly longer than the other two. Club joints subequal. Mandibles tridentate.

Habitat: Rossville (Cooktown), Queensland.

Type: No. *Hy 1838*, Queensland Museum.

2. APROSTOCERELLA IO new species.

Female:—Length, 1.90 mm.

Dark metallic green, the legs (except hind coxa) and a large spot in centre of abdomen just out from base above, lemon yellow, the scape pale, the pedicel less so; antenna black, the pedicel long but shorter than any of the funicle joints of which the first is longest; distal club joint not as long as the distal funicle joint. Ovipositor valves somewhat exserted. Mandibles tridentate. Wings hyaline. Club 1 shorter of the two. Propodeum with two delicate median carinæ which diverge at each end, both short. Valves of ovipositor exserted for a fifth of the abdomen.

Habitat: Nelson (Cairns), Queensland. Jungle, June 5, 1913.

Type: No. *Hy 1839*, Queensland Museum, the above specimen on a slide.

3. APROSTOCERELLA CINCTIVENTRIS new species.

Female:—Length, 1.20 mm.

Resembling *Ootetrastichus nympha* (Girault) but the hind coxæ are metallic green and less than the proximal half of the abdomen is lemon yellow. Sides of mesothorax concolorous. Mandibles tridentate. Ovipositor exserted for a fifth the length of the abdomen. Funicle and club blackish.

Male:—Not known.

Described from one female captured by sweeping jungle growth along a forest streamlet, June 10, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1840,* Queensland Museum, the above specimen on a tag, the head on a slide.

4. APROSTOCERELLA FLAVA new species.

Female:—Length, 2.10 mm.

Somewhat like *Neotrichoporoides uniguttata* Girault but the median carinæ of propodeum fork a little only at extreme apex and there is no black spot in the centre of the abdomen near middle; also the edging of the proximal half of the abdomen is blacked and interrupted and the line down the meson of thorax is only from apex of scutum a little over the base of scutellum; the axillæ are not darker. Otherwise like the species named except the generic character. Scutum near cephalic margin orange yellow and each parapside has an orange spot across it near cephalic apex. *Scutum with a distinct median grooved line.* Mandibles tridentate.

Male:—Not known.

Described from one female captured by sweeping in jungle, May 9, 1913.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1841,* Queensland Museum, the above specimen on a tag, the head on a slide.

GENUS EPOMPHALOIDES Girault.

Like *Neomphaloidella* Girault but the scutum without a median groove. Otherwise like *Tetrastichus* Haliday.

1. EPOMPHALOIDES FLAVUS Girault. Female. Genotype.

Lemon yellow, the wings hyaline; a little rounded spot on propleurum, dorso-caudad just off the notum, two small spots near the tegula, the propodeal spiracle and two dots in a longitudinal line on each side of abdomen, segments 3 and 4, black. An obscure brownish dot on each side, cephalic third of scutum; legs, scape and pedicel pale yellow, the antennæ dusky yellowish. Pedicel longer than the funicle joints. Club without a noticeable terminal spur.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1842,* Queensland Museum.

2. EPOMPHALOIDES VIRIDIS new species.

Female:—Length, 1.65 mm.

Metallic green, dark and aeneous, the legs except first two coxæ, orange yellow; wings hyaline; scape, pedicel and ring-joints concolorous with the legs, the pedicel somewhat dusky; pedicel elongate, a little longer than joint 2 of funicle, funicle joint 1 elongate, a fourth longer than the pedicel. Propodeum scaly, the median carina forking before apex. Mandibles tridentate.

Male:—Not known.

Described from one female captured from a window in a hotel, July 13, 1913.

Habitat: Harvey's Creek (Cairns), Queensland.

Type: No. *Hy 1843,* Queensland Museum, the above specimen on a tag, the head on a slide.

3. EPOMPHALOIDES NIGER new species.

Female:—Length, 1.55 mm.

Jet black, the wings hyaline, the coxæ concolorous, the legs yellow, also the scape, the pedicel dusky yellow, rest of antenna black; pedicel elongate, intermediate between the first and second funicle joints, the first funicle joint about as long as the club, nearly twice the length of the third; nipple not long, distinct. Mandibles tridentate, the two inner teeth smaller and close together. Median carina of propodeum paired, forked at each end (*i.e.*, a fine pair of carinæ, each curving off laterad at base and apex following the cephalic and caudal margins).

Male:—Not known.

Described from one female captured amongst herbage, April 6, 1913 (H. Hacker).

Habitat: Brisbane, Queensland.

Types: No. *Hy 1844*, Queensland Museum, the above specimen on a tag, the head on a slide.

Genus NEOTRICHAPOROIDES Girault.*

Differs from *Trichaporoidella* Girault in bearing four ring-joints.

1. NEOTRICHAPOROIDES UNIGUTTATUS Girault. Female. Genotype.

Honey yellow, the wings hyaline; a little less than the proximal half of the abdomen along each margin dorsad and a stripe down thorax from middle of scutum to a little distad of middle of scutellum, metallic green; a round dot in centre of abdomen slightly distad of middle and tip of ovipositor valves, blackish. All of scutum cephalad of the median stripe reddish brown margined with lemon yellow, scape and pedicel lemon yellow except above, rest of antenna black; pedicel much shorter than the distal funicle joint, the first funicle joint over four times its own width. Mandibles tridentate. Median carina of propodeum forking a little cephalad of middle, prong-shaped.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1845*, Queensland Museum.

Genus EPENTASTICHUS new genus.

Female:—Like *Quadrastichus* Girault but the scutum without a median grooved line.

Male:—Unknown.

Type: Epentastichus nugatorius new species.

1. EPENTASTICHUS NUGATORIUS new species.

Female:—Length, 1.00 mm.

Black suffused with brown, the antennæ and legs lemon yellow, the wings hyaline; hind coxæ brown-black; propleurum lemon yellow, also the head and scutellum except the base of the latter between the first grooves. First funicle joint slightly shorter than the pedicel but distinctly longer than wide, longer than the length of 2 and 3 combined, 2 shortest, 3 cupshaped. Pedicel dusky. Mandibles tridentate.

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* This genus is probably founded upon erroneous observation and is probably *Trichaporoidella*. A second specimen has been seen of the genotype.

Described from one female specimen captured by sweeping in forest, November 6, 1912.

Habitat: Ayr, Queensland.

Type: No. *Hy 1846*, Queensland Museum, the above specimen on a tag, the head on a slide (with the antennæ of a *Rhienopeltella*).

2. EPENTASTICHUS FUSCUS new species.

Female:—Length, 0.65 mm.

Brown, the wings hyaline, the scutellum yellow, the abdomen with three or four narrow transverse stripes across it, these stripes blackish and not very distinct. Legs paler, the antennæ pallid, the pedicel much longer than any of the funicle joints which are wider than long; distal club joint nearly twice the length of the proximal, the club somewhat longer than the funicle. Mandibles tridentate.

Male:—Not known.

Described from one female specimen captured by sweeping lantana and other shrubs in an open field near town, October 20, 1911.

Habitat: Mackay, Queensland.

Type: No. *Hy 1847*, Queensland Museum, the above specimen on a slide.

3. EPENTASTICHUS SEXGUTTATUS new species.

Female:—Length, 0.95 mm.

Bright golden yellow, the wings hyaline, the abdomen with a blackish stripe across extreme base followed along each margin by a line of three short transverse black spots, the caudal one of these a little distad of middle. Pronotum at the meson, scutum across cephalic third nearly to each margin, apex (cephalic end) of each axilla and the propodeum dusky black. Legs wholly concolorous, also the antennæ but the pedicel dark except at tip, the scape pallid, slender, the first funicle joint shortest, subquadrate, the second longest, nearly twice the length of the first, longer than the pedicel. Mandibles tridentate. First club joint not much longer than the second.

Male:—Not known.

Described from one female captured by sweeping forest, summit of second coast range (1,500 feet), May 26, 1913.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1848*, Queensland Museum, the above specimen on a slide.

4. EPENTASTICHUS NIGRIVENTRIS new species.

Female:—Length, 1.00 mm. Short, robust, the abdomen globate.

Reddish brown, the abdomen black; cephalic half each of scutum and axillæ, the parapsides and pronotum darker; wings hyaline; thorax extraordinarily, finely, densely, longitudinally lined; mandibles tridentate; legs yellow (coxæ not seen); antennæ yellow, the distal club joint over twice the length of the proximal, the pedicel stout, much larger than any of the funicle joints of which the first is much the longest, yet cupshaped and somewhat

wider than long; second funicle joint shortest, narrower, transverse and like a ring-joint, the third twice longer, plainly wider than long, about half or more the length of 1. Stigmal vein long.

Male:—Not known.

Described from two females captured by sweeping undergrowth, mostly eucalypts, April 20, 1913 (H. Hacker).

Habitat: Brisbane, Queensland.

Types: No. *Hy 1849*, Queensland Museum, the above specimens on a tag, the heads on a slide.

5. EPENTASTICHUS FLAVUS (Girault). Female.

Quadrastichodes flavus Girault.

Honey yellow; dot on pronotum caudo-laterad, a triangular spot on axilla meso-cephalad, dorsal aspect of propodeum, several spots on each side of abdomen near base followed by an apparent short cross-stripe near the middle; ring-joint large, the pedicel long but not quite as long as joints 1 and 2 of the funicle united, these joints longer than wide, joint 3 barely so.

Habitat: Hughenden, Queensland. Forest-downs.

Type: No. *Hy 1850*, Queensland Museum.

APROSTOCEROLOIDES new genus.

Female:—Like *Trichaporoidella* Girault but the scutum with a median grooved line. Mandibles tridentate.

Male:—Not known.

Type: The following species (*speciosus*).

1. APROSTOCEROLOIDES SPECIOSUS new species. Genotype.

Female:—Length, 2.10 mm.

Honey yellow; centre of vertex and flagellum black. Abdomen above shining coppery brown, but centrally near base this is broken by a large, triangular yellow area. Pedicel dusky, scape dusky along upper edge. Wings hyaline. Scutum (except cephalo-lateral angles), scutellum and propodeum metallic light blue, also the centre of each axilla. Propodeum with a strong median carina, densely reticulate scaly like the rest of the thorax. Funicle joints elongate, the first longer than the club, the third a little shorter than the club, the second subequal to it. Axillæ not advanced.

Male:—Not known.

Described from a single female captured by sweeping in the forest, July 9, 1913.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1851*, Queensland Museum, the above specimen on a tag, the head on a slide.

2. APROSTOCEROLOIDES MARGIVENTRIS new species.

Female:—Length, 1.80 mm.

Deep orange yellow, the wings hyaline; legs concolorous; proximal half of abdomen margined with black (dorsal edge), the extreme tip of abdomen black and a minute dot in centre about opposite the ends of the marginal stripes; an obscure black spot near tegula in the cephalic part of each axilla. Scape concolorous, also the pedicel (but black above), the flagellum black. First funicle joint distinctly longer than the club, the second more or less subequal to the club, the third distinctly shorter than it yet over a third longer than the pedicel.

Male:—Not known.

Described from one female captured by sweeping low vegetation in the forest on the side of Mount Pyramid, November 21, 1911 (elevation about 500 feet).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1852*, Queensland Museum, the above female on a tag, the head on a slide with the type head of *Ootetrastichus grotiusi* Girault.

SYNTOMOSPHYRELLA new genus.

Female:—Like *Syntomosphyrum* Foerster but the antennæ with two ring-joints, the club only 2-jointed, nine joints in all. Scutum simple. Mandibles tridentate. Scutellum with four grooved lines. Postmarginal vein distinctly developed, three fourths the length of the stigmal; marginal vein as long as the submarginal.

Male:—Not known.

Type: The species described herewith (*fuscipennis*).

1. SYNTOMOSPHYRELLA FUSCIPENNIS new species.

Female:—Length, 1.10 mm.

Black, the abdomen brown, the sculpture as in *Tetrastichus*; abdomen with metallic lustre; fore wing with a broad fuscous stripe across it from the marginal vein; legs concolorous except tibiæ and tarsi and much of cephalic femora which are yellowish. Antennæ and face dusky yellow, the funicle joints barely unequal, more or less quadrate, each shorter than the pedicel.

Described from one female captured by sweeping along the side of Mount Pyramid (1,000 feet), forest, August 17, 1912.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1853*, Queensland Museum, the above specimen on a slide.

2. SYNTOMOSPHYRELLA AURIFLAVA new species.

Female:—Length, 1.18 mm. Short and stout.

Deep golden yellow, the wings hyaline, the other appendages concolorous; cephalic margin of pronotum narrowly, a spot near insertion of fore wing and several incisions of the abdomen (obscurely but forming two-four narrow transverse stripes, wide apart and broadly interrupted at meson), dusky; scape dusky above, compressed, the third funicle joint sub-

globular (but wider than long), decidedly larger than the other two, the pedicel much longer than either three; first club joint longest, the second with a slight nipple. (One antenna in this specimen was abnormal, the second funicle joint not at all divided from the third but the articulation merely indicated by a deep incision or sinus from one side). Mandibles tridentate.

Male:—Unknown.

Described from one female captured August 5, 1913, by sweeping in forest.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1854*, Queensland Museum, the above specimen on a slide.

Another female was captured in the same place, three days later. The abdomen bears four narrow dusky stripes and a fifth represented by two spots, one on each side of the meson.

3. SYNTOMOSPHYRELLA AURA new species.

Female:—Length, 1.50 mm.

Deep golden yellow, immaculate excepting for a dot on pronotum at lateral angle and another near the tegulæ; otherwise like *auriflava* except that the club is short, the distal joint obliquely truncate. The median groove of scutum is apparently present (at least cephalad). Intermediate tibial spur long and slender.

Male:—Unknown.

Described from one female specimen captured by sweeping undergrowth, mostly eucalypts, April 20, 1913 (H. Hacker).

Habitat: Brisbane, Queensland.

Type: No. *Hy 1856*, Queensland Museum, the above specimen on a slide.

4. SYNTOMOSPHYRELLA QUADRIMACULATA new species.

Female:—Length, 1.00 mm.

Golden yellow, the legs paler, the wings hyaline; a round spot in centre of scutellum at base, a diamond-shaped spot on each parapside at middle of mesal margin and more or less of the propodeum, dusky black; funicle joints 2 and 3 subequal, a little wider than long, joint 1 a little longer and wider than either but somewhat shorter than the pedicel.

Male:—Not known.

Described from two females captured on the foliage of *Eucalyptus* in forest, November 9, 1913.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1856*, Queensland Museum, the above specimen on a slide.

SELITRICHODELIA new genus.

Female:—Like *Selitrichodella* Girault but there are two ring-joints. Mandibles weakly 4-dentate. Lateral carinæ absent on propodeum, the median carina also absent but the carinated cephalic and caudal margins meeting at the short meson.

Male:—Not known.

Type: The species described herewith (*aenea*).

1. SELITRICHODELIA AENEA new species.

Female:—Length, 1.60 mm.

Dark metallic aeneous green, the wings hyaline; tegulæ and legs (except intermediate and hind coxæ) deep lemon yellow, the antennæ dusky yellow; funicle joints distinctly longer than wide but stout, joints 1 and 2 subequal, each a fourth longer than 3 which is very nearly as long as the pedicel. Club with a nipple, about as long as the two preceding joints.

Described from one female captured by sweeping the floor of forest, May 26, 1912.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1857*, Queensland Museum, the above specimen on a tag, the head on a slide.

2. SELITRICHODELIA AURIOS new species.

Female:—Length, 2.00 mm. Slender, the abdomen elongate, longer than the slender thorax.

Jet black, the wings hyaline, the legs reddish brown (coxæ darker toward base), the antennæ wholly yellow; clypeus and immediate surrounding portion orange yellowish (but not up to antennal insertion by far); thorax and abdomen very finely shagreened. First funicle joint elongate but not quite as long as the club, the others shortening in succession, the third more or less equal to the rather long pedicel.

Male:—Not known.

From one female captured by sweeping *Leptospermum*, April 16, 1913 (H. Hacker).

Type: No. *Hy 1858*, Queensland Museum, the above on a slide.

3. SELITRICHODELIA FUSCIPENNIS new species.

Female:—Length, 1.05 mm.

Jet black, the forewings with a broad fuscous stripe under the marginal vein; legs mostly concolorous, the antennæ greyish or neutral, the funicle joints all shorter than the pedicel, the first two a little longer than wide, the third subquadrate, the two ring-joints distinct.

Male:—Not known.

Described from two females captured among herbage, May 10, 1913 (H. Hacker) and a third on the flowers of *Bæckea*, April 22, 1913.

Habitat: Brisbane, Queensland.

Type: No. *Hy 1859*, Queensland Museum, the above specimens on two tags (heads of all and abdomens of two destroyed).

4. SELITRICHODELIA TRIMACULOSA new species.

Female:—Length, 0.60-0.80 mm.

Pale lemon yellow, the wings hyaline; appendages concolorous; a long, wedge-shaped spot (acute end caudad) on each axilla and a shorter, triangular or rounded spot at base of scutellum mesad, dusky black; propodeum dusky at meson; an obscure spot about the tegulæ

dusky. Pedicel stout, very much longer than the three funicle joints, the last two of which are wider than long, the first somewhat longer, only slightly wider than long.

Male:—Unknown.

Described from two females captured from the leaves of *Eucalyptus* in forest, November 9, 1911.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1860*, Queensland Museum, the above specimen on a slide.

5. SELITRICHODELIA QUADRIMACULATA new species.

Female:—Length, 0.85 mm.

Like *trimaculata*, but there is an additional dark reddish spot (round) at the lateral angle of pronotum (dorsal aspect), one on each side; first funicle joint somewhat shorter than the other two. Mandibles tridentate. Abdomen with several obscure cross-stripes. Scutum with an obscure long, wedge-shaped sordid marking its whole length, one on each side of meson, from base to apex, the acute end caudad.

Male:—Not known.

Described from one female captured by sweeping lantana and other shrubs in an open field near town, October 20, 1911.

Habitat: Mackay, Queensland.

Type: No. *Hy 1861*, Queensland Museum, the above specimen on a tag.

6. SELITRICHODELIA OCCULTA new species.

Female:—Length, 1.25 mm.

Pale honey yellow, the wings hyaline, the legs and antennæ concolorous; four fuscous stripes across the abdomen (a fifth indicated just out from base) between base and apex, the third and fourth joined along the meson by a longitudinal stripe; propodeum, base of abdomen and axilla except along caudal margin and extreme latero-cephalic angle, jet black; a large round spot at base of scutellum between the first grooves and cephalic half of the long scutum broadly nearly to margins, deep fuscous, the median line of scutum cephalad more or less yellowish. Face of pronotum black. Median carina of propodeum extremely short, forking at both ends, the propodeum scaly. Pedicel longer than any of the funicle joints of which the first is longest but only slightly longer than 2, both somewhat longer than wide, joint 3 subequal to 2 but wider, globate-oval. Mandibles 3-dentate, the two inner teeth more or less confluent.

Male:—Not known.

Described from one female captured by sweeping in forest, November 6, 1912.

Habitat: Ayr, Queensland.

Type: No. *Hy 1862*, Queensland Museum, the above specimen on a tag, the head on a slide.

7. SELITRICHODELIA VIVATA new species.

Female:—Length, 0.75 mm. Short, stout.

Thorax intense green yellow, the propodeum jet black, the cephalic half of scutum (except along margins) and distal two thirds of abdomen brown; wings hyaline. Parapsides pale brown except caudad. Proximal third of abdomen very pale yellow. Brown part of abdomen with more or less obscure cross-stripes. Legs and antennæ lemon yellow, the pedicel very much longer than any of the funicle joints of which 1 is longest, cup-shaped, small, joint 3 shortest, a half shorter than 2, which is a little shorter than 1. Mandibles with three well-separated teeth.

Male:—Not known.

Described from one female captured November 6, 1912, from a window in a smithy.

Habitat: Ayr, Queensland.

Type: No. *Hy 1863,* Queensland Museum, the above specimen on a tag, the head on a slide.

TABLE TO THE SPECIES OF *SELITRICHODELIA* Girault.

FEMALES.

Dark metallic green.

Tegulæ and legs (except last two pairs of coxæ) deep lemon yellow; antennæ dusky yellow; funicle joints distinctly longer than wide but stout, 1 and 2 subequal, 3 a fourth shorter and nearly as long as the pedicel; mandibles weakly 4-dentate. *aenea* Girault.

Black.

Wings hyaline.

Legs reddish brown, the antennæ yellow, also the clypeus; funicle 1 elongate, 3 subequal to the rather long pedicel. *aurios* Girault.

Wings with a fuscous or sooty stripe across them under the marginal vein.

Antennæ greyish; funicle joints shorter than the pedicel, joint 3 (funicle) subquadrate. *fuscipennis* Girault.

Yellow and nonmetallic.

Joint 3 of funicle transverse, a half shorter than joint 2 and much the shortest.

Intense green-yellow, the propodeum jet black; cephalic half of scutum, parapsides except caudad and distal two thirds of scutum brown; proximal one third of abdomen pale yellow; mandibles with three distinct teeth. *vivata* Girault.

Joint 3 of funicle not so formed; not a half shorter than joint 2.

Pale lemon yellow; a long, wedge-shaped spot on axillæ, a rounded spot at base of scutellum mesad, propodeum at meson and an obscure spot about the tegulæ dusky; funicle joints 2 and 3 wider than long, the first joint somewhat longer, all much smaller than the pedicel. *trimaculosa* Girault.

The same but a dark reddish round spot at lateral angle of pronotum and the abdomen with obscure cross-stripes; scutum with an obscure, long, wedge-shaped, sordid marking on each side of meson for whole length; joint 1 of funicle somewhat shorter than the other two. *quadrimaculata* Girault.

Pale honey yellow; four fuscous stripes across abdomen, the third and fourth joined along the meson; propodeum, base of abdomen and most of axilla jet black; a spot at base of scutellum between the first grooves and the cephalic half of the long scutum deep fuscous; funicle 1 longest, 2 and 3 subequal in length but 3 wider. *occulta* Girault.

Genus ASYNTOMOSPHYRUM Girault.

Differs from *Syntomosphyrum* Foerster in being small, the abdomen pointed conic-ovate, a little longer than the rest of the body.

1. ASYNTOMOSPHYRUM PAX Girault. Female. Genotype.

Sooty black, the wings hyaline, the scutellum chocolate brown, the lower face and vertex lemon yellow; trochanters, knees, tips of tibiæ and tarsi (also cephalic tibiæ) whitish yellow. Scape pallid, the antennæ dusky yellow, 9-jointed with one ring-joint, the funicle joints shorter than the pedicel, the first subquadrate, the second transverse, short, smallest, the third twice longer than 2, hemispherical. Club much wider than the funicle and longer than it and a little longer than the moderate scape which is compressed. The abdomen pointed conic, a little longer than the head and thorax combined, the ovipositor not exserted. Fore wings ample, very closely, densely, uniformly ciliate, the marginal cilia short, the stigmal vein long and slender. Mandibles tridentate.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1864,* Queensland Museum.

2. ASYNTOMOSPHYRUM ACUTIVENTRIS new species.

Female:—Length, 1.00 mm., excluding ovipositor. Small and slender.

Very dark metallic blackish green and sculptured as in *Tetrastichus* but most finely, the wings hyaline. Abodomen long and conically produced, (excluding ovipositor) over twice the length of the thorax, the ovipositor longly exserted, the exserted portion nearly as long as the thorax. Lateral grooves of scutellum nearly in the lateral aspect, hardly visible from above. Antennæ 9-jointed, with one ring-joint, the funicle joints all longer than wide, the distal two subequal and longest, subequal in length to the pedicel. Scape and pedicel pallid, the flagellum dusky. Tibiæ pale yellowish, the tarsi dusky.

Male:—Not known.

Described from two females captured by sweeping in jungle country, June, 1913 (F. P. Dodd).

Habitat: Kuranda, Queensland.

Type: No. *Hy 1865,* Queensland Museum, one of the above specimens on a tag, the head on a slide with the type appendages of *Neorileyella fasciatus* Girault.

DIAGNOSIS OF THE GENERA OF TETRASTICHINE EULOPHIDÆ.

Females. Australia.

TETRASTICHINI.

The tribe is characterised by the sessile abdomen.

I. Funicle 3-jointed.

1. Mesoscutum *without* a median sulcus; scutellum with four grooved lines.

Antennal club solid.

Antennæ 8-jointed with two ring-joints, the scape somewhat swollen, the funicle joints not elongate, more or less quadrate.

Selitrichodes Girault (Type: *S. fasciativentris* Girault).

Antennæ 9-jointed with three ring-joints, the scape slender, the funicle joints elongate. **Trichaporoidella** Girault (Type: *T. aenea* Girault).

* The thoracic grooves are distinct sulci and not to be confused with impressions due to shrivelling ; those of the scutum and scutellum are alike.

Antennæ 10-jointed with four ring-joints, the scape slender, the funicle joints elongate; median carina of propodeum forking before the middle.

Neotrichaporoides Girault (Type: *N. uniguttata* Girault).

Antennal club 2-jointed.

Abdomen slender, conic-ovate, not produced at tip, the ovipositor not exserted.

Antennæ 8-jointed with one ring-joint, the funicle joints not long but longer than wide. **Epentastichus** Girault (Type: *E. nugatorius* Girault).

Antennæ 9-jointed with two ring-joints; postmarginal vein distinctly developed; funicle joints not elongate.

Syntomosphyrella Girault (Type: *S. fuscipennis* Girault).

Antennæ 11-jointed with four ring-joints; funicle joints elongate.

Ootetrastichus Perkins (Type: *O. beatus* Perkins).

Abdomen produced at tip into a long slender process, the ovipositor longly exserted.

Antennæ 11-jointed with four ring-joints.

Ootetrastichella Girault (Type: *O. longiventris* Girault).

Antennal club 3-jointed.

Antennæ 9-jointed with one ring-joint.

Pronotum long, conical.

Antennæ inserted near the mouth border; abdomen longer than the rest of the body.

Melittobia Westwood (Type: *Cirrospilus acasta* Walker).

Pronotum not especially long, transverse (more or less).

Antennæ inserted nearer to the middle of the face, the funicle joints variable, sometimes long, the abdomen stout, no longer than the thorax and usually broader. Club usually with a terminal seta.

Syntomosphyrum Foerster (Type: *Eulophus cyclogaster* Ratzeburg).

Abdomen pointed conic-ovate, a little longer than the rest of the body; funicle joints shorter. Slender, small.

Asyntomosphyrum Girault (Type: *A. pax* Girault).

Antennæ 10-jointed with two ring-joints.

Abdomen conic-ovate; funicle joints sometimes elongate.

Tetrastichodes Ashmead (Type: *T. floridanus* Ashmead).

Antennæ 11-jointed with three ring-joints.

Funicle joints not elongate; abdomen broadly ovate.

Epomphaloides Girault (Type: *E. flavus* Girault).

Antennæ 12-jointed with four ring-joints.

Neotetrastichoides Girault (Type: *N. flavus* Girault).

2. Mesoscutum *with* a median grooved line; scutellum with four sulci.

Antennal club solid.

Antennæ 7-jointed with one ring-joint.

Abdomen depressed ovate; funicle joints not elongate.

Selitrichodella Girault (Type: *S. mira* Girault).

Antennæ 8-jointed with two ring-joints.

Selitrichodelia Girault (Type: *S. aenea* Girault).

Antennæ 9-jointed with three ring-joints, the funicle joints usually elongate.

Aprostoceroloides Girault (Type: *A. speciosus* Girault).

Antennæ 10-jointed with four ring-joints; funicle joints elongate to subquadrate.
Tetrastichomorpha Girault (Type: *T. flava* Girault).

Antennal club 2-jointed.

Antennæ 8-jointed with one ring-joint; marginal cilia of fore wing short; funicle joints longer than wide, the flagellum a little capitate.
Quadrastichus Girault (Type: *Q. nigrinotatus* Girault).

Antennæ 10-jointed with three ring-joints; postmarginal vein slightly developed; fore wings sometimes infuscated.
Tetrastichella Girault (Type: *T. fuscipennis* Girault).

Antennæ 11-jointed with four ring-joints.
Aprostocerella Girault (Type: *A. kelloggi* Girault).

Antennal club 3-jointed.

Antennæ 9-jointed with one ring-joint; abdomen conic-ovate. Legs normal.
Aprostocetus Westwood (Type: *A. caudatus* Westwood).

Antennæ 10-jointed with two ring-joints.
Tetrastichus Haliday (Type: *Eulophus miser* Nees).

Antennæ 11-jointed with three ring-joints.

Abdomen distad produced into a moderately long stylus; pedicel and funicle joints elongate.

Propodeum with a pair of median carinæ.
Neomphaloides Girault (Type: *N. cinctiventris* Girault).

Abdomen normal, depressed, broadly ovate; pedicel short, the funicle joints variable.

Propodeum with a single median carina.
Neomphaloidella Girault (Type: *N. fasciativentris* Girault).

Antennæ 12-jointed with four ring-joints.

Propodeum usually long with a median carina.

Scape strongly clavate and with coarse scaly sculpture.
Quadrastichodella Girault (Type: *Q. bella* Girault).

Scape normal, slender; propodeum variable but with a median carina which is often very short.
Epitetrastichus Girault (Type: *E. speciosissimus* Girault).

II. Funicle of antenna 4-jointed.

3. Mesonotum without a median grooved line, scutellum with four grooved lines.*

Antennæ 13-jointed with four ring-joints, the scape strongly clavate and with a coarse sculpture; third joint of club spine-like but articulated; postmarginal vein three fourths the length of the stigmal.
Quadrastichodes Girault (Type: *Q. cyaneiviridis* Girault).

Tribe CERATONEURINI.†

This tribe is characterised by the distinctly petiolate abdomen; the type genus lacks all thoracic grooves and its hind wings bear a long, clavate marginal vein. Otherwise it is like the Tetrastichini. The following genera bear the thoracic grooves.

Genus CERATONEURONELLA Girault.

Scutellum with five grooved lines, one median; antennæ 11-jointed with three ring-joints, the club 3-jointed; propodeum with a V-shaped median carina and a hood-like neck; petiole of abdomen distinctly longer than wide. Scutum with a median grooved line.

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* *Eulophoscotolinx* Girault; see p. 265.

† The tribe seems to be characterised by the great variation in the number of grooves or sulci on the scutellum.

1. CERATONEURONELLA NIGRIVENTRIS Girault. Female. Genotype.

Yellowish red, the base of scutellum lemon yellow, the body of the abdomen black, the petiole red; legs red, the hind coxa with a linear black spot down the side; scape pale, pedicel yellowish, rest of antennæ dusky yellowish. Fore wings with a large, subovate smoky spot centrally under distal venation. Funicle 1 much longer than the pedicel and only slightly longer than 2.

Habitat: Nelson (Cairns), Queensland. Jungle.

Type: No. *Hy 1866*, Queensland Museum.

CERATONEURONOMYIA new genus.

Type: The following species.

1. CERATONEURONOMYIA ARNOLDI new species.

Female:—Length, 1.70 mm.

Shining black, the wings hyaline, the tegulæ and legs (except the black coxæ), reddish brown; also the scape. Propodeum with a strong median carina and rugose, the short, stout petiole also rugose, the second and third segments of abdomen longest, subequal, together occupying half of the surface. Sculpture otherwise as in *Tetrastichus* as are also all other characters except that the first funicle joint is elongate, as long as the club, the pedicel also longer than usual, subequal to the second funicle joint, the third funicle joint distinctly longer than wide, longer than any of the three club joints, about half or less the length of the first funicle joint. Abdomen smooth. Mandibles tridentate. Second ring-joint very short, the first distinct; club with a short nipple. Abdomen short, ovate. Antennæ inserted in the middle of the face, the head triangular, the mandibles tridentate.

Male:—Unknown.

Described from one female captured by sweeping jungle foliage, July 25, 1912. The genus differs from *Ceratoneura* Ashmead in bearing the grooves on the thorax as in *Tetrastichus*. The species is respectfully dedicated to Matthew Arnold.

Habitat: Goondi (Innisfail) and Kuranda, Queensland.

Type: No. *Hy 1867*, Queensland Museum, the above specimen on a tag, the head on a slide.

2. CERATONEURONOMYIA LONGISCAPUS new species.

Female:—Length, 1.75 mm.

Dark metallic green, the wings hyaline, the scape long and slender, white, the flagellum black, the pedicel and ring-joints dusky, the pedicel elongate, subequal to funicle 2; funicle 1 elongate, over twice the length of 3 which is somewhat longer than wide; club pale toward tip. Mandibles tridentate. Club with a short nipple. Propodeum rugulose, with a distinct median carina and neck, the abdomen with a short petiole. Coxæ mostly concolorous. Segments 2 and 3 of abdomen occupying only over a fourth of the surface.

Male:—Not known.

From one female, forest, September 16, 1913 (A. P. Dodd).

Habitat: Kuranda, Queensland.

Type: No. *Hy 1869*, Queensland Museum, the above specimen on a tag, the head on a slide.

Differs from the type species in being smaller and slenderer, metallic and the propodeum has a distinct neck; also the first two segments of abdomen are much shorter; the pedicel a little more slender, the scape white. Types of both species examined.

CERATONEUROPSIS new genus.

Female:—Of small build, somewhat resembling a small *Spalangia* but the head is not oblong, the antennæ not inserted far down. Like *Tetrastichus* but the abdomen distinctly petiolate, the antennæ as in *Ootetrastichus* except that the club is solid, 10 joints in all, including four ring-joints. Scutum, however, simple. Fifth abdominal segment very long, as long as half of the body of the abdomen and as segments 2-4 united; of the latter 3 is shortest. Propodeum rather long, with a distinct median carina. Mandibles tridentate. Sculpture as usual in the subfamily, the abdomen polished, like the surface of tar. Stigmal vein long, the marginal as long as the submarginal. Petiole longer than wide.

Male:—Not known.

Type: The following species.

1. CERATONEUROPSIS POINCAREI new species.

Female:—Length, 1.10 mm.

Black, the wings hyaline, the knees, tibiæ and tarsi straw yellow, also the scape, the rest of the antenna dusky. Distal two funicle joints a little longer than the proximal, each about twice (or somewhat less) longer than wide, the first funicle joint only slightly longer than the pedicel which is yellowish beneath; club as long as the first two funicle joints combined, slightly nipped at tip.

Described from one female captured by sweeping the edges of a jungle pocket, May 26, 1913 (A. P. Dodd).

Respectfully dedicated to Jules Henri Poincaré.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1868*, Queensland Museum, the above specimen on a tag, the head on a slide.

TABLE TO THE CERATONEURINE GENERA OF EULOPHIDÆ.

AUSTRALIA. FEMALES.

The tribe is characterised by the distinctly petiolate abdomen and variable sulci.

Mesonotum with a median grooved line.

Scutellum with five grooved lines, one median.

Antennæ 11-jointed with three ring-joints, the club 3-jointed; propodeum with a V-shaped median carina and a hood-like neck; petiole of abdomen distinctly longer than wide. **Ceratoneuronella** Girault (Type: *C. nigriventris* Girault).

Scutellum with four grooved lines, the median absent.

Like *Tetrastichus* Haliday the antennæ 10-jointed with two ring-joints; second and third abdominal segments occupying half of the surface; pedicel elongate; petiole short and stout.

Ceratoneuronomyia Girault (Type: *C. arnoldi* Girault).

Mesonotum without a median grooved line, the scutellum with four grooves.*

Antennæ 10-jointed with four ring-joints, the club solid; segment 5 of abdomen very long, occupying half of the surface, the petiole longer than wide.

Ceratoneuropsis Girault (Type: *C. poincarei* Girault).

Subfamily ELACHERTINÆ.

Tribe ELACHERTINI.

Genus ZAGRAMMOSOMA Ashmead.

Abdomen sessile; antennæ 8-jointed with one very short ring-joint, the funicle 2-jointed; vertex elevated; flagellum subcompresed; body spotted or striped; scutellum with two grooved lines; wings maculate or banded.

1. ZAGRAMMOSOMA PULCHRA Girault. Female.

Thorax dark metallic green, the head pale yellow, the face with a line running down it to about the level of the antennæ, the line wavy and metallic green; a short green line from end of eye to end of head; a fuscous line down the length of the stigmal vein, the wings otherwise hyaline; legs yellow, the hind femur black centrally, the hind tibia black just below knees. Abdomen blackish, one round spot on each side just out from base followed by a subercscentic transverse line, followed on the next segment by an irregular marking on each side and on the next segment by a still wider subsimilar marking, on the next segment a subobconical spot near lateral margin and on the next a similar but larger subquadrate obscure spot. Ring-joint apparently present. Funicle 1 largest, subglobose; third joint terminating in a little spine. Head triangular. Propodeum tricarinate. Mandibles 5-dentate.

Habitat: Nelson (Cairns), Queensland. Forest.

Type: No. *Hy 1870*, Queensland Museum.

Genus CIRROSPILOIDELLEUS Girault.

Like *Cirrospilus* Westwood (Ashmead) but the antennæ 9-jointed with two ring-joints and two funicle joints; third joint of club terminating in a very long spur. Scutellum without grooves. Abdomen with a very short petiole. Mandibles 4-dentate. Propodeal spiracle minute, round.

1. CIRROSPILOIDELLEUS BICOLOR Girault. Female. Genotype.

Submetallic blue-black, the proximal half of abdomen orange yellow. Wings with a slight discoidal stain. Legs lemon yellow, also the antennæ but the club black. Thorax scaly, the propodeum rugose. Pedicel longer than either funicle joint; terminal spine as long as funicle 1 which is slightly longer than wide.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1871*, Queensland Museum.

2. CIRROSPILOIDELLEUS PURPUREUS new species.

Female:—Length, 1.50 mm. With the habitus of *Tetrastichus*.

Dark metallic purple, the wings hyaline, the legs pale lemon yellow except the coxæ. Sculpture fine as in *Tetrastichus*, the propodeum rather short, like the rest of the thorax, not

* The same but only the lateral grooves of scutellum are present. Antennæ 11-jointed, three ring-joints, three club joints; petiole short. Ceratotrastichus Girault and Dodd, n. gen. (type: *C. bisulcatus* n. sp. Gir. & Dodd). The genotype is dark aeneous, the scutum with setigerous punctures, the wings hyaline.

rugose, without carinæ; abdomen sessile. Antennæ pale lemon yellow, short and stout, the club enlarged, the funicle joints quadrate (the first somewhat longer, slightly shorter than the pedicel); pedicel dusky. Mandibles tridentate. Hind tibial spur forked at tip. Parapsidal furrows deep. Antennal club without a nipple.

Male:—Not known.

Described from one female captured by sweeping in forest, July, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1872*, Queensland Museum, the above specimen on a tag, the head and a hind leg on a slide.

3. CIRROSPILOIDELLEUS FASCIATIVENTRIS new species.

Female:—Length, 1.30 mm.

Mandibles with six teeth; propodeum honeycombed; antennæ terminating only in a short, stout seta, the club not enlarged. Orange yellow, the abdomen crossed by four narrow transverse stripes; marginal vein longer than the submarginal which, however, is not broken. Face lemon yellow. Antennæ brown, the first funicle joint rather long, over twice longer than wide, a third longer than the second joint which is subequal to the pedicel. Thorax densely scaly.

Male:—Not known.

Described from a single female captured by sweeping in jungle, July 13, 1913.

Habitat: Harvey's Creek, Queensland.

Type: No. *Hy 1873*, Queensland Museum, the above specimen on a tag, the head and hind tibiæ on a slide.

PSEUDIGLYPHELLA new genus.

Type: The following species.

1. PSEUDIGLYPHELLA CÆLESTIS new species.

Female:—Length, 1.50 mm.

Like *Pseudiglyphus grotiusi* but the ovipositor not exserted, the scutellum between the grooves is reticulately scaly like the rest of the thorax, the propodeum is short at the meson and with a slight ridge there but no true carinæ and the tarsal joints are long as in *Elasmus*. (Mandibles 4-5 dentate); moderately dark, aeneous green, the legs white except the concolorous coxæ, the hind femur with an elliptical black spot centrally against upper edge (lateral aspect). Scape yellowish, the flagellum dusky, the pedicel somewhat longer than both funicle joints which are subequal (nearly, the first a little shorter), the second distinctly longer than wide. Otherwise the same. Postmarginal vein slightly broken. Parapsidal furrows distinct, complete.

Male:—Unknown.

Described from one female captured by sweeping in forest, August 4, 1913.

Habitat: Nelson and Cooktown, Queensland.

Type: No. *Hy 1874*, Queensland Museum, the above specimen on a tag, the hind legs and head on a slide.

A second female was obtained, same place, August 30, 1913. The spot on hind femur was absent. A third female was captured at Cooktown by sweeping in open fields, February 4, 1912. This specimen also lacked the spot on the hind femur while funicle 1 was longer than 2.

Genus ASCOTOLINX Girault.

Antennæ 9-jointed with two ring-joints, the club 3-jointed, the two funicle joints petiolate. Scutellum with two grooves; propodeum with a broad, smooth median carina, the lateral carinæ present. Segment 2 of abdomen occupying nearly half of the surface. Scutellum with *no* transverse suture before apex.* Abdomen conic-ovate.

1. ASCOTOLINX FUNERALIS Girault. Female. Genotype.

Black, the tibiæ and tarsi brown, the wings hyaline; scutellum and second abdominal segment glabrous, the scutellum really very finely reticulated. Thorax roughly scaly; propodeum very finely shagreened. Antennæ black; funicle 2 a little wider than long.

Habitat: Nelson (Cairns), Queensland. Jungle.

Type: No. *Hy 1875,* Queensland Museum.

Genus CIRROSPILOMYIA Girault.

Like *Cirrospiloidelleus* Girault but the abdomen sessile, the club 4-jointed, the fourth joint minute and conic, without a nipple; antennæ 10-jointed with two ring-joints. Mandibles 3-dentate. Scutellum without grooves, the propodeum non-carinate. Abdomen large, much wider than the thorax and a half longer, ovate. Parapsidal furrows deep.

1. CIRROSPILOMYIA MAGNIVENTRIS Girault. Female. Genotype.

Dark aeneous green, the wings hyaline, the abdomen purplish black and with a banded appearance due to the light incisions. Legs whitish, also the scape, the flagellum dusky. Pedicel longer than either of the funicle joints which are subequal and longer than wide.

Habitat: Nelson (Cairns), Queensland. Jungle.

Type: No. *Hy 1876,* Queensland Museum.

Genus ATOPOSOMA Masi.

Differs notably from *Zagrammosoma* Ashmead in bearing two ring-joints in the antennæ.

1. ATOPOSOMA ZOLAI Girault. Female.

Lemon yellow; pronotum, scutum except lateral margins, meson of scutellum broadly and conically nearly to tip, 7-8 narrow stripes across the abdomen (4-6 broadly, the rest narrowly, joined by a longitudinal median stripe), two wavy stripes across face, all of propodeum and parapsides and two diamond-shaped spots on each axilla dark metallic green. A dusky spot against the stigmal vein. Funicle joints subequal. Two stripes across fore wing. (Type re-examined.)

Habitat: Capeville (Pentland), Queensland. Forest.

Type: No. *Hy 1877,* Queensland Museum.

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* But the grooves join around the margin. The genus is hemiptarsenæ.

2. ATOPOSOMA LANEI new species.

Female:—Length, 1.00 mm.

Intense lemon yellow. A broad stripe down median line of thorax, a narrower one down meson of abdomen forking near each end and intersecting five cross-stripes, the margins of the abdomen (dorsad) to fourth cross-stripe and around apex, a stripe along each side of thorax (dorsad), converging, crossing over each side of propodeum and joining broadly around its base, black. A narrow stripe across occiput at ventral ends of eyes and two diverging stripes from it up the occiput. Substigmal spot present. Mandibles 6-dentate.

From one female captured by sweeping along a roadway near the Herbert River, February 28, 1913. Dedicated to Ralph Lane for his book The Great Illusion, A Study of the Relation of Military Power in Nations to their Economic and Social Advantage.

Habitat: Halifax (Ingham), Queensland.

Type: No. *Hy 1878,* Queensland Museum, the above specimen on a slide.

3. ATOPOSOMA CHANNINGI new species.

Female:—Length, 1.05 mm.

Like *saintpierrei* Girault but the abdomen bears six distinct cross-stripes and the whole of the median line of scutum is black, the short apical median stripe on abdomen absent. The fore wings in both species are faintly banded as in species of *Closterocerus*; the heads are also striped in both species but I could not make out the pattern.

Male:—Not known.

Described from a single female captured by sweeping in jungle, July 26, 1913.

Habitat: Meerawa (Cairns District), Queensland.

Type: No. *Hy 1879,* Queensland Museum, the above specimen on a slide with the type head of *Zagrammosomoides consobrinus.*

4. ATOPOSOMA SAINTPIERREI new species.

Female:—Length, 1.00 mm.

Orange yellow marked with black almost as in *variegatum* as figured by Masi but the pattern on the abdomen is different consisting of about five narrow cross-stripes, a more or less obscure mesical blotch centrally and a short median dark stripe at apex. Also, the fore wings are obscurely infuscated and bear a distinct substigmal spot which embraces the stigmal knob. Three narrow black stripes down the long pronotum; parapsidal furrows dark except at each end and the middle of the median line of scutum, scutellum and postscutellum is black; also cephalic margin of scutum (accented on each side of middle, triangularly); a wavy black line across propodeum, resembling a bat with the wings out but not expanded. Scutum with two grooved lines. Lags and antennæ yellow; two ring-joints. (Head markings not seen.) Mandibles with six teeth, the sixth minute.

Male:—Not known.

Described from one female captured by sweeping in the forest, September 13, 1912. Later, a second female was found in a bottle labelled "Nelson, October, 1912. Sweeping in forest."

Habitat: Quingilli and Nelson, Queensland.

Type: No. *Hy 1880,* Queensland Museum, the first specimen on a slide.

5. ATOPOSOMA GROTIUSI new species.

Female:—Length, 1.10 mm.

Greenish or lemon yellow, the pronotum pale green, the head orange yellow, wonderfully marked with black metallic green in this manner: The parapsides, a broad stripe down meson and each side of the long pronotum, two spots in the upper part of the occiput, a bullet-shaped spot at base of scutellum at the meson, a rounded spot at cephalic margin of each axilla nearly centrally, the scutum with a large acuminately conical marking whose broad base fills rest from side to side but quickly recedes, all of propodeum and 6 or 7 narrow stripes across the abdomen (stripes 4 and 5 close together; there is also a narrow median stripe); also a spot in centre of postscutellum, a broad stripe across occiput below the eyes and various stripes on the head (not definitely seen in this specimen). Legs pale yellow but the hind femur and tibia with two dusky bands. Antennæ dusky yellowish. The usual substigmal spot.

Male:—Not known.

Described from one female captured by sweeping in forest, April 13, 1913.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1881,* Queensland Museum, the above specimen on a slide (with the head type of *Selitrichodelia aenea* Girault).

6. ATOPOSOMA GREGI new species.

Female:—Length, 1.45 mm.

Greenish yellow, the wings bifasciate, one broader stripe around apex, the other from the stigmal knob. Marked with bright metallic green as follows:—Meson (conically) and each margin of pronotum, parapsides, an oval spot in centre of cephalic end of each axilla, scutum across cephalic margin, the caudal margin of the green obliqued caudo-mesad to the meson, shortly and then conically, slenderly prolonged down whole of meson so that it is acute when caudal margin is reached, an elongate, conical spot on scutellum down meson from base, all of propodeum except transversely just laterad of postscutellum and six cross-stripes on the abdomen, the first four stripes each with a caudal triangular projection from them on each side half way to margin, the projection increasing in size caudad. Head pattern not seen. Antennæ dusky. Hind legs as in *grotiusi* nearly, the hind tibiæ with a stripe below knee and before tip. Somewhat similar to *grotiusi* but less green on the scutum, the wings are banded and so on. Tegulæ green.

Male:—Not known.

Described from one female captured by sweeping in the forest, August 23, 1913 (A. P. Dodd). Dedicated to W. R. Greg.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1882,* Queensland Museum, the above specimen on a slide.

7. ATOPOSOMA ARNOLDI new species.

Female:—Length, 1.35 mm.

Orange yellow, the abdomen with seven black cross-stripes including the one at base, stripes 3-6 usually thickened centrally and confluent; fore wings with a small substigmal spot and infuscated slightly distad of the stigmal vein and caudad of a straight line drawn longitudinally through the knob of that vein. Little over caudal half of median line of

scutum narrowly, proximal half of same of scutellum similarly, thoracic sutures narrowly, median line of propodeum more broadly and the cephalic and caudal margins, a number of spots on the mesopleura and a dot on each side of pronotum, black. Legs uniformly orange yellow, the antennæ orange. Head immaculate. Both funicle joints distinctly longer than wide. Abdomen with a very short petiole, usually concealed. Mandibles with at least five teeth.

Male:—The same but the scutum and scutellum immaculate, the seventh abdominal stripe obscure, the abdomen more depressed, less acute; the fore wings hyaline. Mandibles not seen.

Described from one male, six females captured on the flowers of *Bœckea*, April 22, 1913 (H. Hacker).

Habitat: Brisbane, Queensland.

Type: No. *Hy 1883*, Queensland Museum, the above specimens on a slide.

The species is respectfully dedicated to Matthew Arnold.

8. ATOPOSOMA MAZZININI new species.

Female:—Length, 1.30 mm.

Very similar to *saintpierrei* but greenish yellow, the abdomen with seven stripes, the fore wings hyaline (excepting the stigmal spot which runs along the entire vein), the median stripe of thorax is continuous and complete (propodeum not seen); there is also a distinct ovate spot in the axillæ. A short broad stripe across the cheeks from the eyes; a narrow stripe up the occiput on each side continuing over on to the vertex. Lateral stripes of the several thoracic regions complete. First funicle joint quadrate, the second wider than long, the scape margined along dorsal edge with black, the pedicel coloured dorsad, the antennæ dusky. Otherwise with the markings so far described for *saintpierrei*.

Male:—Not known.

Described from one female captured by sweeping undergrowth, mostly eucalypts, April 16, 1913 (H. Hacker).

Habitat: Brisbane, Queensland.

Type: No. *Hy 1884*, Queensland Museum, the above specimen on a slide.

Dedicated to Giuseppe Mazzini.

TABLE OF THE SPECIES OF *ATOPOSOMA* MASI.

AUSTRALIA. FEMALES.

(Compiled from the types.)

The colours of the markings are metallic or submetallic.

Legs immaculate.

Wings hyaline (excluding a more or less obscure substigmal spot).

Whole of median line and lateral margins of thorax black; meson of abdomen, five cross-stripes and margins to fourth stripe from base and around apex, black. *lanei* Girault.

Whole of median line and lateral margins of thorax not continuously coloured but only those of pronotum narrowly and the middle of the median line of scutum, scutellum and postscutellum are black and the cephalic margin of scutum. A wavy stripe across propodeum. *mazzinini* Girault.

Wings with a stigmal and apical cross-stripe and infuscated more or less longitudinally proximad of the stigmal stripe.

Pronotum with median line and lateral margins narrowly black; also middles of median line of scutum, scutellum and postscutellum; also cephalic margin of scutum and five abdominal cross-stripes and a short apical median longitudinal stripe. *saintpierrei* Girault.

The same but whole of median line of scutum is black and the abdomen bears six cross-stripes, the short apical median longitudinal stripe is absent. *channingi* Girault.

Wings generally infuscated, without distinct stripes, the infuscation distad.

Orange yellow; seven cross-stripes on abdomen, caudal half of median line of scutum narrowly, proximal half of same of scutellum, thoracic sutures, median line of propodeum more broadly and the cephalic and caudal margins, spots on mesopleura and a dot on each side of pronotum, black. *arnoldi* Girault.

Wings with a distinct stigmal and apical cross-band, otherwise hyaline.

Pronotum, all of scutum except lateral margins, meson of scutellum broadly and conically nearly to tip, 7-8 narrow abdominal cross-stripes, propodeum and parapsides and two spots on axilla, metallic green. *zolai* Girault.

Legs with distinct bands, the fore wings with two more or less distinct cross-stripes.

Cross-stripes of fore wings obscure, the apical one indicated centrally.

Greenish yellow, the pronotum pale green; parapsides, three stripes down pronotum, a spot at base of scutellum mesad, another at cephalic margin of axilla, a large conical marking on scutum cephalad, abdominal stripes and propodeum metallic greenish; hind femur and tibia with two dusky bands. *grotiusi* Girault.

Stripes of fore wing distinct.

The same; meson of pronotum conically and an elongate conical spot on scutellum at base bright metallic green; first four abdominal stripes with a caudal triangular projection from them on each side half way to margin; hind tibiæ with two bands. *gregi* Girault.

PSEUDELACHERTEUS new genus.

Female:—Antennæ inserted somewhat below the middle of the face, 9-jointed, two ring-joints, the club solid; scutellum with two grooved lines united around the apical margin; parapsidal furrows complete, deep. Mandibles 5- and 6-dentate. Abdomen distinctly petiolate. Hind tibial spur normal. Pronotum as in the Eurytomidæ. Propodeum with a long median carina, lateral carinæ also present. Second abdominal segment occupying half of the surface, the petiole short. Postmarginal and stigmal veins subequal, the marginal two and a half times longer than the stigmal.

Male:—Not known.

Type: The following species.

1. PSEUDELACHERTEUS NIGRITHORAX new species.

Female:—Length, 1.50 mm.

Shining black, the abdomen (except the black petiole) dull brown, also the legs and antennæ but the scape lemon yellow. Wings hyaline. Pronotum and scutum finely reticulated,

the scutellum and propodeum subglabrous. Pedicel and first funicle joint subequal, the four funicle joints more or less equal and subquadrate. Club half the length of the funicle.

Described from one female captured from a window, January 11, 1912.

Habitat: Innisfail, Queensland.

Type: No. *Hy 1885*, Queensland Museum, the above specimen on a tag, the head and hind legs on a slide.

2. PSEUDELACHERTEUS SILVENSIS new species.

Female:—Length, 1.50 mm.

Like the type species but the second abdominal segment is only a third the surface, the abdomen margined all around with black, the pedicel distinctly shorter than the first funicle joint, the flagellum more or less dusky.

Male:—Not known.

Described from one female captured by sweeping the edge of jungle, May 17, 1913 (A. P. Dodd).

Habitat: Kuranda, Queensland.

Type: No. *Hy 1886*, Queensland Museum, the above specimen on a tag, the head and hind legs on a slide.

3. PSEUDELACHERTEUS AURIPES new species.

Female:—Length, 1.40 mm.

Like *silvensis* but the scape usually concolorous with the rest of the antenna, while the body of the abdomen is reddish brown margined as in *silvensis* but darker and less distinctly margined. Scutellum and propodeum quite smooth. Ring-joints apparently absent but the proximal margin of first funicle joint plainly rimmed, appearing like a ring-joint.

Male:—The same but only the centre of the abdomen is yellowish centrally.

Described from one male, three females, captured by sweeping herbage, June 29, 1913 (H. Hacker).

Habitat: Brisbane, Queensland.

Type: No. *Hy 1887*, Queensland Museum, one male, two females on a single tag and a slide bearing a female.

ENTEDONOMORPHA new genus.

Female:—Head rounded, the antennæ inserted below the middle of the face on a level with the ventral ends of the eyes, the scape long and slender, the funicle 3-jointed, the club 4-jointed, two ring joints. Mandibles 4-dentate. Scutellum with two foveate grooved lines. Abdomen petiolate, the petiole somewhat longer than wide. Hind tibial spur small. Postmarginal and stigmal veins moderately long, subequal. Propodeum with a median carina which forks at apex; lateral carinæ complete, regularly curved. Spiracle minute, round. Pronotum subquadrate, nearly as long as the scutum. Abdomen conic-ovate, short.

Male:—Not known.

Type: The following species. See p. 270.

1. ENTEDONOMORPHA TENNYSONI new species.

Female:—Length, 1.00 mm.

Shining black, the wings hyaline, the whole of the interior of abdomen dorsad and ventrad lemon yellow; legs pale yellow including coxæ (at least the hind and intermediate coxæ, others not distinctly seen). Thorax coarsely reticulated, the lines not raised, the scutellum at apex and the propodeum glabrous. Scape white, the pedicel, ring-joints and first funicle joint pallid dusky, rest of antenna black; funicle joints subequal, cylindrical ovate, longer than the pedicel (the first somewhat longest) or than any of the club joints; club rather compact, the fourth joint like a large nipple but distinctly articulated and black, the three preceding ones more or less square. First ring-joint very short, the second collar-like, very distinct.

Described from one female captured September 3, 1913, by sweeping in a jungle pocket (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1888*, Queensland Museum, the above specimen on a tag, the head and hind legs on a slide.

Genus GYROLASELLA Girault.

The following additional species:

1. GYROLASELLA PULCHRA new species.*

Female:—Length, 2 mm. Robust.

Honey yellow, the wings hyaline; the mandibles only tridentate; scutellum with an obscure second grooved line, nearly as in *Tetrastichus*, but very far laterad and thus not easily visible (most probably imaginary); vertex not at all elevated; antennæ more slender than with *Atoposoma*; antennæ inserted in the middle of the face like those of *Atoposoma*. Like *channingi* but most of the green is lacking on the parapsides and the coxæ are all yellow except for a spot on hind coxa laterally; femur above near base with a short green line; scape bordered with green along each upper side, the pedicel green above; no spot on postscutellum, the marking of scutum conically pointed distad, that of scutellum narrow, cylindrical; each ocellus in a green spot and at the front corner of vertex near the eye is a caret-shaped green mark; head otherwise not marked except on occiput. Sculpture fine scaly reticulation.

Male:—Not known.

Described from six females reared from a gall on the foliage of *Eucalyptus* in forest, September 18, 1912.

Habitat: Nelson (Cairns), Queensland.

Types: No. *Hy 1889*, Queensland Museum, three of the above on a tag.

2. GYROLASELLA ELEGANTISSIMA new species

Female:—Length, 1.60 mm.

Bright lemon yellow, the wings hyaline; marked with brilliant metallic grass green as follows:—A round spot in centre of pronotum, a short slender spot in caudo-lateral angle of

* For treatment of the genus, see pp. 166-168.

same, cephalic sixth of scutum, inner margins of parapsides, centre of axilla from middle to cephalic apex, centre of scutellum conically between the grooves to distal sixth, a round dot at base of postscutellum at meson and a triangular one at apex of scutum at meson, propodeum (forming a U from dorsal aspect) and three short rather broad transverse marks across meson of abdomen (excluding at base centrally a more or less rounded, submetallic area) between base and apex. Valves of ovipositor black. Legs concolorous. Antennæ yellowish, the scape crossed by a metallic stripe from middle of dorsal margin; also the pedicel above at base metallic; the first funicle joint subequal to pedicel, the second slightly longer than wide. Scutellum with two grooves. Mandibles with six teeth. Hind tibial spur slender.

Male:—Not known.

Described from one female captured in forest, August 28, 1913.

Habitat: Nelson, Queensland.

Type: No. *Hy 1890*, Queensland Museum, the above specimen on a tag, the head and hind legs on a slide.

3. GYROLASELLA CHANNINGI new species

Female:—Length, 1.50 mm.

Like *Atoposoma zolai* but the wings perfectly hyaline, no substigmal spot, the yellow lateral margins of the scutum narrow and the facial markings differ, also somewhat the arrangement of the abdominal stripes; the axilla bears only one large dark green spot, hung from the cephalo-mesal margin. The area on the scutellum is subquadrate and fills nearly the whole space in between the lateral grooves. Inner three or four teeth of mandibles very weak and minute. Hind coxæ metallic green, the others the same at proximal half; hind femur blackish, the first femur broadly margined ventrad with metallic green.

Male:—Unknown.

Described from one female captured by sweeping on the forest-downs, July 14, 1912.

Respectfully dedicated to William E. Channing for his Discourses on War.

Habitat: Hughenden, Queensland.

Type: No. *Hy 1891*, Queensland Museum, the above specimen on a slide.

4. GYROLASELLA QUADRIFASCIATA new species.

Female:—Length, 1.25 mm.

Dull honey yellow, the legs concolorous, the wings wholly hyaline, the abdomen with four narrow cross-stripes of black across the portion between each end, the third and fourth stripes curved cephalad at the meson. Propodeum with a distinct median carina. Otherwise agreeing generically. Thorax scaly. Mandibles with six teeth. First funicle joint longer than the pedicel, the second quadrate. Scutellum with two grooves.

Male:—Not known.

Described from one female captured by sweeping in the forest, April 13, 1912.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1892*, Queensland Museum, the above specimen on a tag, the head on a slide.

5. GYROLASELLA WORCESTERI new species.

Female:—Length, 0.90 mm., excluding ovipositor which projects beyond tip of abdomen for over half the latter's length.

Like *Atoposomoidella channingi* Girault but much less robust and the legs are all pallid; also the large area on the scutum is conical, its acute apex just reaching the distal margin and the metallic green centre of the scutellum is rectangular, slightly narrowing distad, extending from base not quite to apex and not reaching from side to side to the two grooves; the parapsides are only narrowly green along the caudal half or more of the mesal margin; propodeum with two stripes across it. Wings hyaline. (Pronotum not seen well but all green.) Head dusky, vertex orange yellow. Mandibles 5-dentate. Pedicel distinctly longer than any joint of the funicle or club.

Male:—Not known.

Described from a single female captured by sweeping along the banks of Cape River in forest, January 6, 1913.

Habitat: Capeville (Pentland), Queensland.

Type: No. *Hy 1893*, Queensland Museum, the above specimen on a slide.

This species was at first mistaken for an *Atoposoma*, but the submarginal vein is more broken than usual with that genus and the pronotum is short.

ELACHERTETRASTICHUS new genus.

Female:—With the build of *Tetrastichodes margiscutum* Girault, that is short and compact, the abdomen almost round from lateral aspect, no longer than the thorax. Scutellum without grooves. With the habitus and structure of *Tetrastichus* except as noted, yet the submarginal vein with only a slight break, not broken in the usual way and plainly different; postmarginal vein barely developed, the marginal plainly shorter than the submarginal. Head normal, the mandibles tridentate, the antennæ short and stout, inserted somewhat below the middle, 11-jointed, the funicle 2-, the club 3-jointed as in *Gyrolasella*, but there are four distinct ring-joints. Propodeum very short, the median carina very weak or absent. Scutum simple, the parapsidal furrows very deep.

Male:—(See beyond.)

Type: The following species.

1. ELACHERTETRASTICHUS PURPUREUS new species.

Female:—Length, 1.65 mm.

Dark metallic purple with bluish tinges, the wings hyaline, the knees, tibiæ and tarsi white, the distal tarsal joint dusky black; antennæ dusky black, the club paler, the scape white beneath, the two funicle joints short, equal, somewhat wider than long; no nipple on club; pedicel a little longer than either funicle joint; club somewhat enlarged. Mesopleurum bluish. Thorax finely, densely scaly. Hind tibia with a small dusky spot some distance below knee.

Described from one female reared from a gall on the foliage of *Eucalyptus* in forest, September 18, 1912.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1894*, Queensland Museum, the above specimen on a tag, the head and hind legs on a slide.

(What seemed to be a male of this species was captured August 22, 1912, by sweeping in forest at Nelson; the tibiæ were all concolorous, the venation noticeably darker, the antennæ very thickly hispid but otherwise the same.)

2. ELACHERTETRASTICHUS AENEIPES new species.

Female:—Length, 1.75 mm.

Like *purpureus* but dark aenous green, the legs concolorous except knees, tips of tibiæ, all of cephalic tibiæ and three basal tarsal joints, the mandibles are only bidentate and the first funicle joint not half the length of the second which is slightly wider than long. Scape concolorous. Pedicel longer than second funicle joint.

Male:—Not known.

Described from one female captured August 30, 1913, by sweeping in forest.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1895*, Queensland Museum, the above specimen on a tag, the head and a hind leg on a slide.

CIRROSPILOMELLA new genus.

Female:—Like *Cirrospilomyia* Girault, but wholly nonmetallic, the mandibles with about six teeth, the five inner ones small, the pedicel shorter than the first funicle joint; propodeum with interlacing carinæ. Abdomen with a very short petiole, depressed, conic-ovate. Scutellum with a median impressed line (not a groove).

Male:—Not known.

Type: The following species.

1. CIRROSPILOMELLA FASCIATUS new species.

Female:—Length, 1.45 mm.

Deep orange yellow, the tip of the ovipositor valves and five stripes across abdomen black, none of the stripes especially near base or tip, the last two with each arm obliqued cephalo-mesad to the meson; ovipositor exserted slightly. Fore wings uniformly stained. Thorax punctate. Legs lemon yellow. Postmarginal vein subequal to the stigmal. Antennæ brown-black, the scape yellow, the second funicle joint a little shorter than the pedicel.

Described from one female captured by sweeping in a jungle pocket, July 30, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1896*, Queensland Museum, the above specimen on a tag, the head and hind legs on a slide.

EULOPHOSCOTOLINX new genus.*

Female:—Head normal, the antennæ inserted somewhat below the middle of the face, 9-jointed, with one ring-joint, four funicle and two club joints, the second club joint terminating in a nipple. Parapsidal furrows deep, the scutellum with two grooved lines. Abdomen sessile,

* Tetrastichini.

conic-ovate, somewhat longer than the head and thorax combined. Propodeum short, with a median carina which meets a semicircular carina at apex; also several obscure carinate folds mesad of the spiracle but no true lateral carina. Venation resembling that of *Tetrastichus*, the postmarginal vein barely developed but the submarginal vein is only about half broken. Hind tibial spurs single. Mandibles weakly bi- or tridentate. Type re-examined.

Male:—Not known.

Type: The following species.

1. EULOPHOSCOTOLINX VIRIDIS new species.

Female:—Length, 2.00 mm.

Grass green, metallic, the wings hyaline, the legs deep lemon yellow (excluding most of all coxæ); tegula yellow; antennæ brown, the scape pallid yellow. Head and thorax finely densely scaly, including the propodeum. First funicle joint longest, longer than the first club joint, about a half longer than wide, the fourth shortest, a little longer than wide, but longer than the short pedicel.

Described from one female captured by sweeping grasses and weeds along a roadside, March 4, 1913.

Habitat: Halifax (Ingham district), Queensland.

Type: No. *Hy 1897*, Queensland Museum, the above specimen on a tag, the head and hind legs on a slide.

EURYSCOTOLINX new genus.

Female:—Non-metallic; head triangular (cephalic aspect), the antennæ inserted near the middle, 10-jointed with two ring-joints, the club 2-jointed and with a short nipple. Parapsidal furrows complete, distinct, the pronotum large, the scutellum with two grooves, the propodeum with the mesial portion elevated and with an X-shaped median carina and short neck; abdomen with a distinct but short petiole, the second segment longest, occupying about a fourth or more of the surface. Postmarginal vein lengthened, twice longer than the stigmal. Mandibles about 5-dentate. Grooves of scutellum joined around the apex.

Male:—Not known.

Type: The following species.

1. EURYSCOTOLINX GUTTATIVERTEX new species.

Female:—Length, 1.45 mm.

Orange yellow, the centre of the vertex with a large, round black spot and a little over proximal half of abdomen margined with fuscous and centrally, opposite the ends of the marginal stripe, a rather large dusky black spot; also the tip is black. Wings hyaline. Legs and scape concolorous, the pedicel dusky, rest of antennæ black. Thorax with a scaly sculpture. Distal two funicle joints longest, the first slightly longer than the pedicel, the club divided slightly beyond the middle, its first joint shorter than funicle 4.

Described from one female captured August 14, 1913, by sweeping grass along a forest streamlet (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1898*, Queensland Museum, the above specimen on a tag, the head and last two pairs of legs on a slide.

PSEUDIGLYPHOMYIA new genus.

Female:—Like *Pseudiglyphella* Girault but nonmetallic, the abdomen with a short stout petiole, the propodeum usually rugulose (no distinct carinæ), the second abdominal segment covering a third of the surface, the others much shorter than it; mandibles with about five teeth. Pronotum conical. Postmarginal vein a little longer than the stigmal, neither long.

Male:—Not known.

Type: The following species.

1. PSEUDIGLYPHOMYIA BIGUTTATA new species.

Female:—Length, 1.80 mm.

Orange or reddish yellow, the wings hyaline, the legs whitish; propodeum, tip of abdomen, a broad stripe across a little distad of middle, two subquadrate spots just out from base of abdomen from each lateral margin, cephalic fourth or more of scutum and a dot on each axilla at cephalic margin laterad, black. Antennæ dusky, the scape and pedicel dusky, the pedicel black above, the first funicle joint longer than the second which is longer than the pedicel. Thorax reticulately scaly. Caudal half of pronotum lemon yellow.

Described from one female captured by sweeping jungle growths along a forest streamlet, August 1, 1913.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1899*, Queensland Museum, the above specimen on a tag, the head and hind legs on a slide.

2. PSEUDIGLYPHOMYIA FUSCA new species.

Female:—Length, 1.35 mm.

Like *biguttata* but with no markings other than about seven narrow, obscurely dusky stripes across abdomen from base to tip, the distal half of pronotum paler; tegulæ fuscous. A more or less distinct median carina on propodeum. Mandibles with six (?) teeth. Otherwise the same.

Male:—Not known.

Described from one female captured by sweeping lantana and other growths in an open field near town, October 20, 1911.

Habitat: Mackay, Queensland.

Type: No. *Hy 1900,* Queensland Museum, the above specimen on a tag, the head and hind legs on a slide.

3. PSEUDIGLYPHOMYIA CARINATUS new species.

Female:—Length, 1.15 mm.

Pale lemon yellow, the wings hyaline, the abdomen beyond the second segment crossed by a half dozen or more black stripes (or the appearance of such stripes), all close together and nearly fused (practically so in death, making somewhat over distal half of abdomen black). Propodeum black, densely punctate and with a distinct median carina and no others. Abdomen with a short petiole, just out from base with a short longitudinal fuscous mark near each

margin. Parapsidal furrows and divisions between pronotum and mesonotum black. Thorax scaly. Mandibles 6-dentate. Funicle joints stout, both longer than wide, the first somewhat longer, both much longer than the pedicel.

Male:—Not known.

Described from one female captured by sweeping in forest, August 26, 1913.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1901*, Queensland Museum, the above specimen on a tag, the head and a hind tibia on a slide.

4. PSEUDIGLYPHOMYIA RUSTICUS new species.

Female:—Length, 1.30 mm.

Lemon yellow, the wings hyaline, the legs white; propodeum, an exclamation-point-like (inverted) marking from base of scutellum (reaching to distal third), suture between pro- and mesonotum, parapsidal furrows, centre of occiput (transversely), face of pronotum, suture between scutum and scutellum and about four to five stripes across distal two thirds of the abdomen (more or less fused in death), black; also a dot at cephalic margin of each axilla. Propodeum glabrous or nearly, with a median carina; thorax reticulated into scale-like areas. Antennæ yellow, the terminal spine of the antennæ forked, one of the branches less stout and shorter than the others. Joint 1 of funicle slightly longer than wide, joint 2 wider than long, also the three club joints; pedicel somewhat shorter than the first funicle joint.

Male:—Not known.

Described from one female captured September 6, 1913, by sweeping in forest.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1902*, Queensland Museum, the above specimen on a tag, a hind leg and the head on a slide.

GENUS SECODELLA Girault.

Like *Secodes* Girault but the antennæ with two ring-joints, hence 11-jointed, the third club joint terminating in a seta; propodeum with a short median carina. (From the Omphalini.) Submarginal vein long, entire.

1. SECODELLA LINEATA Girault. Female. Genotype. (Type re-examined.)

Dark metallic green, the ample wings hyaline; antennæ and legs black, the proximal three joints of tarsi snow white. Second funicle joint longest, a fifth longer than wide, the first and fourth more or less subequal, subquadrate; distal club joint a little shorter than the other two.

Habitat: Mackay and Seymour, Queensland.

Type: No. *Hy 1903*, Queensland Museum.

2. SECODELLA PULCHRA new species.

Female:—Length, 2.60 mm.

Like *lineata* but longer, more robust, the abdomen compressed and longer, nearly twice longer than the head and thorax combined. Joint 2 of the funicle is plainly much longer than

wide, about twice longer than wide, joint 4 plainly longer than wide, much longer than the pedicel. Distal club joint plainly shorter than the other two taken separately. Funicle 2 a third longer than funicle joint 3.

Habitat: Little Mulgrave River (Cairns), Queensland. Jungle.

Type: No. *Hy 1904*, Queensland Museum.

3. SECODELLA RUFISCAPIS new species.

Female:—Length, 2.25 mm.

Like *lineata* but the scape reddish brown, the general coloration dark metallic blue; thorax (excluding propodeum) finely reticulately punctate as with *lineata*. Joints 1 and 2 of funicle subequal, each a third longer than wide.

Male:—Not known.

Described from two females captured March 29 and April 22, 1913, among grass and herbage and on the flowers of *Bæckea* respectively (H. Hacker).

Habitat: Brisbane, Queensland.

Type: No. *Hy 1905*, Queensland Museum, the above specimens on a tag, the heads on a slide.

Later, two females were found, each captured with one of the others (on two slides—not types).

4. SECODELLA PETULANS new species.

Female:—Length, 1.00 mm.

Like *lineata* but the funicle joints all quadrate and equal, the sculpture (reticulate punctation) of the scutum not coarser than that of the scutellum. The body is much less robust, the ovipositor less prominent. Hind tibial spur single.

Male:—Not known.

Described from one female captured by sweeping forest along the banks of Cape River, January 9, 1913.

Habitat: Capeville (Pentland), Queensland.

Type: No. *Hy 1906*, Queensland Museum, the above specimen on a tag (minus abdomen), the head and a hind leg on a slide with the type appendages of *Gyrolasomyia washingtoni*.

Genus MESTOCHARELLA Girault.

Differing from *Mestocharis* in having four funicle joints and the scutellum with two grooved lines; propodeum with a median carina and a number of irregular carinæ. Pronotum long; stigmal vein very short; segments 2 and 3 of abdomen occupying half of the surface.

1. MESTOCHARELLA FERALIS Girault. Female. Genotype.

Shining black. The venter of abdomen and a large ovate area in centre of its dorsum yellow; legs brownish yellow except coxæ; wings hyaline; antennæ brownish yellow, the distal three joints blackish. First funicle joint longest of the funicle. Thorax scaly. Length, 1.20 mm. Funicle 4 ovate, longer than either of the club joints.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1907*, Queensland Museum.

The genus and species transferred from the Entedonini, the type re-examined because yellow was noticed to be present on the body. The propodeum is rugulose but a median carina shows for its entire length. Submarginal vein slightly broken, shorter than the marginal and as the stigmal vein is very short, the venation is very similar to that of the tribe from which, on the grounds of composite characters, this genus is removed. Petiole of abdomen a little longer than wide. Hind tibial spur short, mandibles tridentate. One ring-joint, the club 2-jointed.

Genus ENTEDONOMORPHA Girault.

Female:—With the form of the Entedonini but with yellow coloration on the abdomen, the submarginal vein not broken, long but somewhat shorter than the long marginal, the stigmal long and slender but shorter than the long postmarginal. Antennæ 11-jointed, two ring-, three funicle and four distinct club joints, the conical distal joint with a short, stout, curved spine from the side of its apex. Scutellum with two foveate grooves, the propodeum tricarinate Abdomen depressed, ovate, with a distinct, quadrate petiole, the second segment occupying somewhat over half the surface. Hind tibial spur slender. Metallic green. Mandibles 4-dentate. Antennæ inserted below the middle of the face.

Male:—Not known.

1. ENTEDONOMORPHA RENANI new species.

Female:—Length, 1.35 mm.

Dark shining metallic green, the wings hyaline, the thorax reticulately scaly, the lines not raised; propodeum much smoother. Legs, scape, pedicel, ring-joints and abdomen yellow, the latter margined all around with dark greenish. Antennæ black-green, the first three club joints subquadrate, the three funicle joints subpetiolate, cylindrical, 1 longest, 2 and 3 subequal, a fourth shorter than 1, a little longer than the pedicel.

Described from one female captured in the jungle September, 1913 (A. P. Dodd). Dedicated to Ernest Renan.

Habitat: Kuranda, Queensland.

Type: No. *Hy 1908,* Queensland Museum, the above specimen on a slide.

Genus CLUTHAIRA Cameron.

Eyes pilose, occupying three fourths of the cheeks; scutellum without two dorsal grooves; propodeum with median and lateral sulci. Abdomen distinctly petiolate, the second segment occupying as much space as the others united. Intermediate tibial spurs two thirds, the hind spurs half, the length of the metatarsus. Marginal vein more than twice the length of the submarginal, the postmarginal and stigmal veins short. Club 3-jointed? Abdomen upturned. Head triangular.

1. CLUTHAIRA AGARISTÆ Cameron. Female. Genotype.

Cameron, 1912, p. 212.

Dark blue, segment 2 of abdomen bright blue, also hind femora; legs concolorous; knees and tips of tibiæ more or less testaceous; tarsi white except last joint. Wings hyaline. Smooth, shining, mesonotum transversely striated. Length, 2 mm.

Habitat: Sydney, New South Wales. Associated with *Agarista glycine.*

Type: Query.

This poorly described genus, I think, belongs to the Entedonini—abdomen petiolate, its second segment lengthened, marginal vein very long, postmarginal and stigmal veins short, metallic blue color, the upturned abdomen. It will be difficult to recognise without seeing the type.

SPECIES UNKNOWN.

Cœlocyba viridilincata Froggatt, 1907, p. 79, fig. 48.

Described in an agricultural journal as a merisine pteromalid, figured with 4-jointed tarsi and in form resembling the Elachertini.

Cirrospilus species of Walker—de Dalla Torre, 1898.

DIAGNOSIS OF THE ELACHERTINE EULOPHIDÆ.

FEMALES. AUSTRALIA.

The tribe is characterised by bearing but a single normal spur on the caudal tibiæ.

1. Scutellum with two dorsal grooved lines.
   (1) Antennæ with the funicle 2-jointed.
      Club 3-jointed; one (?) ring-joint.
         Head much longer than wide and very thin; flagellum subcompressed, the ring-joint usually hidden, apparently present; body variegated, the wings banded or with a substigmal fascia or a pattern.
            Zagrammosoma Ashmead (Type: *Hippocephalus multilineata* Ashmead).
      Club 3-jointed; two ring-joints.
         Propodeum very short, more or less hidden at the meson by the postscutellum. Body variegated.
            Vertex elevated; pronotum long triangular.
               Postmarginal vein shorter than the stigmal; flagellum subcompressed. Fore wings usually with a substigmal spot, often with fasciæ.
                  Atoposoma Masi (Type: *A. variegatum* Masi).
            Vertex not elevated; pronotum transverse.
               Wings usually hyaline.
                  Gyrolasella Girault (Type: *G. fasciatus* Girault).
         Propodeum long, easily visible at the meson.
            Body all metallic or all black the abdomen sessile; propodeum with a distinct median carina (single or paired).
               Propodeum tricarinate, the median carina broad, solid; second abdominal segment occupying nearly half of the surface, scutellum with no transverse suture before apex; funicle joints petiolate.
                  Ascotolinx Girault (Type: *A. funeralis* Girault).
               Propodeum bicarinate, short, with an obscure paired median carina at the meson; antennæ short, capitate; second abdominal segment occupying less than a fourth of the surface; scutellum without a cross-suture before apex; funicle joints not petiolate.*
                  Pseudiglyphella Girault (Type: *P. cœlestis* Girault).
            Body nonmetallic, yellowish; propodeum usually rugulose, the abdomen shortly petiolate.
               Pronotum conical; second abdominal segment occupying about a third of the surface; postmarginal vein a little longer than the stigmal.
                  Pseudiglyphomyia Girault (Type: *P. biguttata* Girault).

* Propodeum sometimes with a distinct median carina. *Ascotolinx* is misplaced. *Pseudiglyphus* Girault omitted by mistake; it is characterized by the short scutum and the much advanced axillæ.

Club 4-jointed; two ring-joints.

Body nonmetallic; mandibles about 6-dentate; propodeum with interlacing carinæ, the abdomen with a short petiole, depressed, conic-ovate.

Cirrospilomella Girault (Type: *C. fasciatus* Girault).

(2) Antennæ with the funicle 3-jointed, the club 4-jointed; two ring-joints.

Metallic; abdomen petiolate; propodeum tricarinate; segment 2 of abdomen occupying half of the surface. **Entedonomorpha** Girault (Type: *E. tennysoni* Girault).

(3) Antennæ with the funicle 4-jointed.

Club solid; two ring-joints.

Grooves of scutellum united around the apex; pronotum large, as in the Eurytomidæ, cephalo-ventrad conically produced; propodeum tricarinate; second abdominal segment occupying from a third to a half of the surface; mandibles 5- and 6-dentate; abdomen distinctly, shortly petiolate; the habitus of *Euplectrus*; body black.

Pseudelacherteus Girault (Type: *P. nigrithorax* Girault).

Club 2-jointed.

Antennæ 9-jointed with one ring-joint; abdomen sessile, conic-ovate; propodeum short, with a median carina which meets a semicircular carina at apex; no true lateral carina; mandibles weakly bi- or tridentate; postmarginal vein barely developed. Metallic.

Eulophoscotolinx Girault (Type: *E. viridis* Girault).*

The same but nonmetallic, the abdomen distinctly petiolate, the stigmal vein very short, the pronotum long, segments 2 and 3 of the abdomen long, together occupying half of the surface.

Mestocharella Girault (Type: *M. feralis* Girault).

Antennæ 10-jointed with two ring-joints; propodeum with the mesal portion elevated and with an X-shaped median carina and short neck; abdomen with a distinct but short petiole; postmarginal vein lengthened, twice the length of the stigmal. Mandibles about 5-dentate. Nonmetallic.

Euryscotolinx Girault (Type: *E. guttativertex* Girault).

2. Scutellum without dorsal grooved lines.

(1) Antennæ with the funicle 2-jointed.

Antennæ 9-jointed with two ring-joints, the club 3-jointed, the third joint terminating in a long spur; abdomen with a short stout petiole; propodeum rugose; mandibles 4-dentate. Submetallic.

Cirrospiloidelleus Girault (Type: *C. bicolor* Girault).

Antennæ 10-jointed with two ring-joints, the club 4-jointed, the fourth joint minute and conic, not with a spur; abdomen large, ovate, sessile; propodeum without a median carina; mandibles 3-dentate. Metallic.

Cirrospilomyia Girault (Type: *C. magniventris* Girault).

Antennæ 11-jointed with four ring-joints, the club 3-jointed, the flagellum short and stout; body short and compact, the abdomen almost round from lateral aspect; parapsidal furrows very deep; postmarginal vein barely developed; mandibles tridentate; propodeum very short, with a weak median carina or without carinæ. **Elachertetrastichus** Girault (Type: *E. purpureus* Girault).

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* Tetrastichini.

(2) Antennæ with the funicle 4-jointed, the club 3-jointed; two ring-joints. Fore wings with the discal ciliation arranged in more or less regular lines; postmarginal vein longer than the stigmal; propodeum short but with a median carina; abdomen sessile, long, conical, pointed ovate. Mandibles tridentate.

Secodella Girault (Type: *S. lineata* Girault).

(Compare *Cluthaira* Cameron.)

TRIBE EUPLECTRINI.

Characterised by bearing two unequal, elongate spurs on the hind tibiæ.

GENUS EUPLECTRUS Westwood.

The Australian forms described by me have a 2-jointed club, the funicle 4-jointed, the scutellum with no grooves. The antennæ 9-jointed. Mandibles absent?

1. EUPLECTRUS AUSTRALIENSIS Ashmead. Female.

Ashmead, 1900, p. 347.

Black, antennæ light brownish; abdomen except extreme tip above and the legs except the black hind coxæ, peach yellow. Pronotum rather coarsely, confluently punctate, mesonotum with sparse, moderately large punctures cephalad but smooth caudad; scutellum feebly shagreened.

Habitat: Australia.

Type: Cat. No. *4901*, United States National Museum, Washington, D.C., U.S.A.

2. EUPLECTRUS AGARISTÆ Crawford. Female.

(Crawford, 1911, p. 281. Cameron, 1912, p. 212.)

Black, the abdomen largely reddish-testaceous; clypeal region whitish, all of legs reddish-testaceous; funicle 1 distinctly longer than the pedicel, the following joints shortening; joint 4 about equal to pedicel in length. Scutum with a median longitudinal carina and rather finely rugose, the rugæ more or less transverse, the parapsidal area more finely sculptured than the median lobe; axillæ much more finely striate; scutellum finely indistinctly lineolately reticulated, the lines more or less longitudinal; wings slightly yellowish; proximal joint of hind coxæ slightly longer than second; abdomen margined all around with dark brown.

Habitat: Sydney, New South Wales. Larvæ of *Agarista glycine*.

Type: Cat. No. *13,972*, United States National Museum, Washington, D.C., U.S.A.

According to Cameron (l.c.), the larvæ of this species feed exteriorly on the larvæ of its host, forming their cocoons in company, "enveloping them in a mass of dark greyish, coarse, woolly hair, on the remains of the devoured caterpillars." Thus, the Australian members of the genus have the usual larval habits of its extra-Australian species. Cameron in the same place supposes this species to be common and variable, the median carina of scutum present or absent.

3. EUPLECTRUS XANTHOCEPHALUS Girault. Female.

Like *australiensis* Ashmead but the head and hind coxa also honey yellow; petiole of abdomen black; a broad brownish stripe across the abdomen distad of middle followed by a narrow stripe, the two joined along the middle; scrobes blackish. Wings slightly stained

under venation. Thorax sculptured nearly as in species of *Tetrastichus* but the scutum densely scaly except at cephalic third. Abdomen margined with brown. Antennæ 10-jointed, one ring-joint and a 3-jointed club, the third joint of the latter very minute like a nipple yet apparently articulated. Funicle joints subequal, each slightly longer than the pedicel. Propodeum with a long median carina, apparently smooth. Longest hind tibial spur not quite half the length of the hind tarsus.

Habitat: Nelson (Cairns), Queensland. Forest.

Type: No. *Hy 1909*, Queensland Museum.

4. EUPLECTRUS CAIRNSENSIS Girault. Female.

The same as in *xanthocephalus* but the head is black, the wings hyaline; longest spur of hind tibia over half the length of the hind tarsus. Joints 1 and 4 of funicle a little longer than either of joints 2 or 3. Median carina of propodeum straight, single.

Habitat: Cairns and Nelson, Queensland and Thursday Island, Torres Strait. Jungle and forest.

Type: No. *Hy 1910*, Queensland Museum.

What appears to be a male of this species was captured by sweeping in forest, March 12, 1912, on Thursday Island.

5. EUPLECTRUS MELANOCEPHALUS Girault. Female.

Differing from *cairnsensis* in having the third coxa black; like *australiensis* but the sides of the abdomen dorsad margined with purplish black while the whole distal third of that region is the same colour; pronotum not punctate, feebly alutaceous, the vertex nearly smooth; sculpture otherwise as in *xanthocephalus*; antennæ blackish toward tip.

Habitat: Nelson (Cairns), Queensland. Jungle.

Type: No. *Hy 1911*, Queensland Museum.

6. EUPLECTRUS NIGRIFEMUR Girault. Female.

Differing from *melanocephalus* in having the cephalic coxa black, the legs brown, the hind femur black, the first femur blackish around the middle. Flagellum pale dusky yellow; distad somewhat less than third of abdomen blackish above. Median carina of propodeum forked at proximal fourth as in the others but the fork longer. Scutellum and scutum rugose, the axillæ nearly smooth, the parapsides alutaceous, the pronotum along cephalic margin with a cross-row of deep foveæ. Head nearly smooth. Scutellum with two foveate grooves.

Habitat: Nelson (Cairns), Queensland. Jungle.

Type: No. *Hy 1912*, Queensland Museum.

7. EUPLECTRUS SCOTTI new species.

Female:—Length, 3.20 mm.

Like *cairnsensis* but the scutellum is longitudinally wrinkled and the scutum with a distinct median carina. Like *agaristæ* but all legs, abdomen and antennæ pale lemon yellow, funicle 4 distinctly longer (by a fourth) than the pedicel, funicle 1 about one and a half times the length of the pedicel. Long striation of scutellum distinct; parapsides sculptured like the

scutum. Pronotum very finely reticulated like the cephalic part of scutum. Vertex smooth. Clypeal area and tegula lemon yellow. Abdomen margined with blackish along sides for proximal three fourths, the margining black then crossing the dorsum. Wings yellowish. Axillæ glabrous.

One female by sweeping along a road near the Herbert River, February 28, 1913.

Habitat: Halifax (Ingham), Queensland. Jungle.

Type: No. *Hy 1913*, Queensland Museum.

Dedicated with respect to Mr. Harlan Scott, an American negro.

8. EUPLECTRUS KURANDAENSIS Girault. Female.

Like *melanocephalus* but the scutum with a median carina; the axillæ smooth mesad.

Habitat: Kuranda, Queensland. Jungle.

Type: No. *Hy 1914*, Queensland Museum, the above specimen on a tag.

TABLE TO THE AUSTRALIAN SPECIES OF *EUPLECTRUS* WESTWOOD.

The species seen by me do not have the axillæ advanced and the submarginal vein is partly broken.

The types of the species described by me have been re-examined in making up the table.

Black species.

Head yellow.

All of each leg and the abdomen yellow, the latter margined with brown and with a brownish stripe distad of middle followed by a narrow stripe; wings slightly stained under venation; funicle joints subequal, each slightly longer than the pedicel. Longest hind tibial spur not quite half the length of the hind tarsus. *xanthocephalus* Girault.

Head black or nearly all so.

Hind coxa black.

Femora yellow or mostly so.

Abdomen not margined with black.

Pronotum rather coarsely, confluently punctate; abdomen black at extreme tip; mesonotum with sparse moderately large punctures cephalad, smooth caudad. *australiensis* Ashmead.

Abdomen margined all around with black; scutellum finely reticulated, finer than cephalic part of scutum.

Distal third of abdomen black; pronotum feebly alutaceous; scutum densely scaly except at cephalic third. Scutum without a median carina. Axillæ finely reticulated. Wings clear. *melanocephalus* Girault.

The same; scutum with a median carina; mesal half of axilla smooth. Wings stained. *kurandaensis* Girault.

Hind femur black.

Cephalic coxa black; scutellum and scutum rugose, the parapsides alutaceous, the pronotum with deep foveæ across cephalic margin. Wings clear. *nigrifemur* Girault.*

* *Euplectromorpha.*

Hind coxæ yellow.

Scutum with a distinct median carina.

Abdomen margined all around with brownish; funicle 4 subequal to pedicel; parapsides more finely sculptured than scutum. *agaristæ* Crawford.

Abdomen margined along proximal three fourths with brownish, then with a cross-stripe; funicle 4 a fourth longer than the pedicel; parapsides sculptured like the scutum. Scutellum finely longitudinally lined. Axillæ glabrous or nearly *scotti* Girault.

Scutum without a median carina.

Abdomen marked as in *xanthocephalus*; joints 1 and 4 of funicle subequal, longest. Longest tibial spur of hind legs over half the length of the hind tarsus. Scutellum and axillæ finely polygonally reticulated. *cairnsensis* Girault.

Genus EUPLECTROMORPHA Girault.

Like *Euplectrus* but the abdomen less depressed, the ovipositor longer, the submarginal vein is not broken and the antennal club is solid. Type re-examined and mistakes in original description corrected. Antennæ 9-jointed with two ring-joints, the first very short. Scutellum with a lateral groove as in many elachertine genera. The scutellum has not a cross-furrow in the sense in which usually understood but in the type species the caudal margin is indented. Wings as in *Euplectrus*. Propodeum with a median carina. The species are more inclined to yellow than to black.

1. EUPLECTROMORPHA UNIFASCIATA Girault. Female. Genotype.

Bright orange yellow, the wings subhyaline, the legs, scape and head paler, also the abdomen which has a rather broad black stripe across it somewhat distad of the middle. Funicle 1 somewhat longer than wide, longer than the pedicel, the other large, subquadrate. Club solid. Head and thorax very finely reticulated.

Habitat: Babinda, Queensland. Jungle.

Type: No. *Hy 1915*, Queensland Museum.

2. EUPLECTROMORPHA MALANDAENSIS new species.

Female:—Length, 2.95 mm.

Head, scutellum, caudal margin of pronotum and scutum except cephalad, deep orange-yellow, also all of the legs and abdomen (except margins all around). Otherwise black. Thorax with a fine dense scaly sculpture, the propodeum somewhat finer, its median carina thickened at base. Scutum with setigerous punctures. Antennæ and distal half of scutellum lemon yellow. Wings slightly yellowish. Occiput black. Caudal margin of scutellum not indented. Type re-examined.

From one female captured by sweeping in virgin jungle, December 31, 1911.

Habitat: Malanda, Queensland. Jungle.

Type: No. *Hy 1916*, Queensland Museum.

3. EUPLECTROMORPHA FLAVA new species.

Female:—Length, 1.70 mm.

Like *unifasciata* but there is a *dusky* stripe across the abdomen somewhat *proximad* of the middle and a second fuscous spot in middle at tip; also the first funicle joint is distinctly longer, nearly as long as the club, distinctly shorter in the type species. The club is solid in both species, since I have re-examined the type species. The mandibles appear to be absent. Two ring-joints, nine antennal joints.

Male:—Not known.

Described from one female captured by sweeping in forest, August 13, 1913.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1917*, Queensland Museum, the above specimen on a tag, the head on a slide.

Tribe OPHELININI.

Genus OPHELINUS Haliday.

Antennæ 9-jointed with one ring-joint, the club thickened, 3-jointed; tibial spurs long; scutellum simple; abdomen sessile or subsessile.

1. OPHELINUS URSIDIUS (Walker). Female. Genotype.

Eulophus ursidius Walker, 1839, pp. 44-45.

Ophelinus ursidius Walker—Haliday, 1843, p. 301.

Habitat: Tasmania (Hobart).

Type: Probably in the Natural History Museum, London.

2. OPHELINUS FANNIUS (Walker). Female.

Cirrospilus fannius Walker, 1839, p. 49.

Ophelinus fannius Walker—Haliday, 1843, p. 301.

Tetrastichus fannius Walker, 1846, p. 79.

Habitat: Tasmania (Hobart).

Type: Probably in the Natural History Museum, London.

3. OPHELINUS SABELLA (Walker). Female

Eulophus sabella Walker, 1839, pp. 41-42.

Cirrospilus Prymno Walker, ib., p. 50.

Ophelinus sabellus Walker—Haliday, 1843, p. 301.

Habitat: Tasmania (Hobart).

Type: Probably in the Natural History Museum, London.

Genus ALOPHOMORPHA Girault.

Metallic; antennæ 11-jointed with two ring-joints, the club 3-jointed; parapsidal furrows shallow; grooves on scutellum curving toward each other around tip but not joining. Propodeum with a distinct median carina with a short sulcus on each side of it at middle. Postmarginal vein longer than the stigmal. Hind tibial spurs short, strong. Abdomen sessile, broadly ovate. Club not widened.

1. ALOPHOMORPHA PULCHRA Girault. Female. Genotype.

Dark metallic blue, the scutellum between the grooves and second segment of abdomen green, the wings hyaline; coxæ and femora concolorous, the hind femur white at proximal half; tibiæ and tarsi white. Scutum and pronotum densely punctate-reticulate, the scutellum between the grooves densely shagreened, the postscutellum and propodeum smoother, very finely reticulate, the axillæ more grossly so. Second segment of abdomen glabrous. Funicle 1 large, as long as the club, the others shortening, the fourth not much longer than wide, subequal to the pedicel but larger. Small distal club joint without a nipple.

Habitat: Nelson (Cairns), Queensland. Jungle.

Type: No. *Hy 1918*, Queensland Museum.

Genus SYMPIESOMORPHELLEUS Girault.

Antennæ 10-jointed with two ring-joints, the club 2-jointed; abdomen subsessile, long, ovate, segments 2 and 3 longest, subequal. Nonmetallic. Median carinæ of propodeum forked just before base, their ends parallel, the propodeum with a short neck. Parapsidal furrows well defined. Scutellum with two grooves. Mandibles about 6-dentate. Spiracular sulci present, carinated along each margin.

1. SYMPIESOMORPHELLEUS SUTTNERI Girault. Female. Genotype.

Ochreous yellow, the wings hyaline, the antennæ black except under parts of scape, the legs wholly concolorous but somewhat paler than the body; abdomen at base centrally pale yellow, elsewhere purplish black, this color at dorsal meson projecting obtusely into the proximal yellow area. Thorax scaly, the surface of the propodeum less so. Funicle 1 longest, about as long as the club, longer than the pedicel.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1919*, Queensland Museum.

2. SYMPIESOMORPHELLEUS SPECIMENIPENNIS new species.

Female:—Length, 1.55 mm.

Orange yellow, the parapsides, apex of scutum and scutellum faded or lemon yellow, the abdomen brownish yellow with very obscure, narrow blackish cross-stripes and black across immediate base; legs concolorous, the coxæ pale. Antennæ yellowish white, the club white, joints 3 and 4 of funicle black. Fore wings with a smoky loop (crescentic mark), from proximal third of marginal vein round to apex of stigmal, the apex of the curve extending caudad beyond midlongitudinal line of the blade. Ring-joints short; funicle 1 longest, nearly as long as the club, the following joints shortening, funicle 4 longer than wide,

stout, longer than club joint 1 which is subequal to the pedicel. Mandibles about 7-dentate; funicle joints subpetiolate and with a nipple-like spine from each latero-distal angle. One spur of hind tibiæ very short, stout. Grooves of scutellum near lateral margin and joined round apex. Axillæ not advanced. Thorax reticulate-punctate, the axillæ smooth, faintly reticulate. Propodeum glabrous.

Male:—Not known.

Described from one female captured by sweeping in heart of jungle, September 12, 1913 (A. P. Dodd).

Habitat: Kuranda, Queensland.

Type: No. *Hy 1920*, Queensland Museum, the above specimen on a tag, the head and hind legs on a slide.

Genus PARENTEDON Girault.

Scutellum with two grooves. Antennæ 10-jointed with two ring-joints, the club 2-jointed. Body mostly metallic; abdomen subsessile, short, ovate; propodeum tricarinate; antennæ inserted below the ventral ends of the eyes; mandibles 13-dentate. Postmarginal vein somewhat longer than the rather long stigmal. Hind tibial spurs normal, the spur of the intermediate legs long and slender. Propodeal spiracle minute. This genus was removed from the Entedonini on suspicion because when compiling the portion of this manuscript on that tribe it was noticed in the description of the type species that the latter was partly nonmetallic. Consequently, the type was re-examined with the result that the true position of the genus is ascertained. Occipital margin of vertex acute.

1. PARENTEDON AUSTRALIS Girault. Female. Genotype.

Dark metallic green, the abdomen (except distad, more or less, where it is metallic) and legs reddish brown. Eyes hairy. Thorax scaly, the axillæ smoother. Funicle 1 somewhat longer than the pedicel, the fourth joint a little longer than wide; scape pale, the flagellum dusky brownish. Fore wings indefinitely stained (yellowish). Inner eleven teeth of mandibles comblike, minute.

Habitat: Capeville (Pentland), Queensland.

Type: No. *Hy 1921*, Queensland Museum (altered now from that published originally: A thorax and two abdomens on one tag and a slide with three hind, one intermediate, legs and two antennæ).

Genus OPHELIMINUS Girault.

Like *Alophomorpha* Girault in antennal structure and otherwise but the scutellum simple, the propodeal median carina has not the short sulci on each side; also the abdomen is long pointed conic-ovate. Mandibles 5-dentate.

1. OPHELIMINUS GROTIUSI Girault. Female. Genotype

Brilliant metallic green, the wings hyaline, the abdomen dark purplish, dorsad with a pale yellowish, large subquadrate area centrally a short distance from base; this yellow area larger ventrad. Legs white except proximal part of hind coxa; scape white, dusky above, the flagellum black; funicle 1 about twice the length of the pedicel, joints 2 and 3 of funicle

subequal, a little the longest and stoutest; joint 1 of club equal to the combined length of the other two. Reticulated, including the propodeum. Fore wings with dense discal ciliation, the marginal cilia very short.

Habitat: Nelson (Cairns), Queensland.

Type: No. Hy 1922, Queensland Museum.

2. OPHELIMINUS LONGFELLOWI new species.

Female:—Length, 2.25 mm.

Same structurally as the type species but the abdomen somewhat shorter and stouter and wholly dark purplish, blue at base; coxæ suffused with dusky. Pedicel only slightly longer than wide, the first funicle joint much more than twice its length, a little the longest of the funicle, the fourth the shortest yet longer than the first club joint and nearly twice the length of the pedicel. Hind tibial spurs distinct, rather stout. Propodeum with no carinæ laterad.

Male:—Not known.

Described from a single female captured by sweeping in a jungle pocket, July 24, 1913 (A. P. Dodd).

Dedicated to Henry W. Longfellow.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1924,* Queensland Museum, the above specimen on a tag, the head and a hind leg on a slide.

On July 29, a second female was captured in the same place; this was more robust and there was a distinct elongate black spot on front femur about the middle beneath (present in the type specimen but smaller). A third female from the same place, August 7.

DIGLYPHOMORPHELLA new genus.

Female:—Like *Diglyphomorpha* Ashmead but the scutellum without a median grooved line only with lateral grooves; funicle 4-jointed, the club 2-jointed. Propodeum with a strong median carina but without lateral carinæ. Antennal club terminating in a nipple-like spur. One spur of hind tibiæ short. Abdomen sessile, stout and ovate. Postmarginal vein longer than the long stigmal. Spur of antennal club apparently articulated but I do not think so.

Male:—Not known.

Type: The following species.

1. DIGLYPHOMORPHELLA DELIRA new species

Female:—Length, 1.10 mm.

Dark metallic blue-green, the scutellum and abdomen coppery; wings subhyaline; legs and antennæ dusky. Propodeum shiny steel blue but polygonally reticulated, the rest of the thorax more noticeably so. First funicle joint a little longer than wide, the others a little wider than long; pedicel barely longer than the first funicle joint. Portion of face yellowish.

Described from one female captured from a window in a railway depôt, July 11, 1912.

Habitat: Townsville, Queensland.

Type: No. *Hy 1923,* Queensland Museum, the above specimen on a tag, the hind tibiæ and the head on a slide.

2. DIGLYPHOMORPHELLA SANNIO new species.

Female:—Length, 1.50 mm.

Dark metallic green with a peculiar pattern as follows: Lateral and caudal margins of pronotum and scutellum, all of postscutellum, extreme cephalo-lateral corner of scutum, the axillæ except a central portion, golden yellow; also the blackish stout abdomen down the centre with elongate transverse lemon yellow marks and with reciprocal roundish spots of the same color down each side; venter of abdomen yellow. Pronotum as in *Atoposoma*, the propodeum short but with a median carina and no others. Head with more or less yellowish (not distinctly seen). Wings hyaline. Flagellum black, the scape pale, marked with dusky, the funicle joints all short, wider than long. Mandibles 5-dentate. Club without a nipple. Ring-joint very short, probably absent.

Male:—Not known.

Described from one female captured by sweeping in the forest, August 23, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1925*, Queensland Museum, the above specimen on a tag, the head and hind legs on a slide.

DIGLYPHOMORPHOMYIA new genus.

Female:—Like *Diglyphomorphell*a Girault but nonmetallic and the scutellum instead of the grooved lines bears a line of isolated punctures along the caudal and lateral margins in one continuous line. Parapsidal furrows complete. Postmarginal vein slightly longer than the stigmal. Mandibles with six teeth. One short ring-joint, 4 funicle and 2 club joints. The propodeum is tricarinate. Abdomen flat, ovate, the second segment with its distal margin spherical, along the meson the segment covering a third of the surface and much the longest. Funicle joints with short peduncles. Propodeum with a neck, the abdomen sessile or subsessile.

Male:—Not known.

Type: The following species.

1. DIGLYPHOMORPHOMYIA NIGRISCUTELLUM new species.

Female:—Length, 1.30 mm.

Blood red, the abdomen yellowish brown, margined laterally with black (not to tip), crossed by very obscure darker stripes and with a roundish blackish spot about centrally; scutellum jet black and with scattered pin-punctures in the disk. Wings hyaline. Legs white including the coxæ; also the scape and distal antennal joint, the rest of antenna black. Thorax scaly. First funicle joint elongate, twice the length of the fourth, which, however, is broader and not much longer than wide, about as long as the pedicel. Face yellow, the vertex dusky.

Described from one female captured by sweeping in jungle, July 30, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1926*, Queensland Museum, the above specimen on a tag, the head and hind legs on a slide.

ALOPHOMOPSIS new genus.

Female:—Scutellum without grooves; antennæ 7-jointed without ring-joints, the club solid, the funicle 4-jointed; abdomen sessile, short, conic-ovate. Postmarginal vein distinctly longer than the stigmal. Mandibles 5-dentate. Propodeum apparently with a median carina and no others, the spiracle minute. Metallic.

Male:—Not known.

Type: The following species.

1. ALOPHOMOPSIS SPENCERI new species.

Female:—Length, 0.95 mm.

Dark green, the wings hyaline, the abdomen purplish, the thorax finely shagreened. Legs yellowish, the hind coxa concolorous, the hind femur concolorous or else blackish along the middle. Antennæ dusky, short, the funicle joints subglobular, shorter than the short club which is longer than wide. Pedicel globular. Mandibles minute. Club without a terminal spur.

Described from one female captured by sweeping in the forests adjoining Cape River, January 8, 1913.

Dedicated to Herbert Spencer.

Habitat: Capeville (Pentland), Queensland.

Type: No. *Hy 1927,* Queensland Museum, the above specimen on a tag, the head and hind leg on a slide.

ALOPHOMORPHELLA new genus.

Female:—Like *Alophomorpha* Girault but the abdomen petiolate, the propodeum strongly tricarinate, the sulci on each side of the median carina absent or nearly. Scutum and scutellum at base with a longitudinal median depression. Grooves of scutellum joining around distal margin. Mandibles with seven teeth. Parapsidal furrows deep. Petiole short but distinct. Habitus of *Euplectrus.*

Male:—Not known.

Type: The following species.

1. ALOPHOMORPHELLA ILLUSTRIS new species.

Female:—Length, 2.50 mm.

Brilliant metallic aeneous green, the wings hyaline, the abdomen purplish black, white ventrad except at tip and also all along the middle portion dorsad at proximal half. Legs white except the sides of hind coxæ. Thorax finely, transversely wrinkled somewhat as in *Megastigmus,* the propodeum, however, glabrous. Scape and tegulæ white. All funicle joints longer than the pedicel, the first long, over a third longer than the fourth. Scutum with scattered, long, soft pubescence.

Described from one female captured by sweeping in jungle, July 10, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1928.* Queensland Museum, the above specimen on a tag, the head and hind tibiæ on a slide.

GROTIUSELLA new genus.

Female:—Like *Opheliminus* Girault but there is only one ring-joint, the club 2-jointed, the flagellum somewhat fusiform, stout and subcompressed; propodeum short as in the Omphalini, nonearinate; abdomen sessile, not long, conic-ovate. Mandibles with more than three

teeth, several very minute inner ones. Club without a terminal seta, the pedicel globular, not compressed, smaller than the funicle joints. Parapsidal furrows short but attaining the advanced axillæ. Hind tibial spurs short, unequal. Postmarginal vein longer than the slender stigmal, the marginal about two and a half times the length of the stigmal. Metallic and with an omphaline habitus.

Male:—Not known.

The genus is respectfully dedicated to the jurist and historian Hugo Grotius.

Type: The following species.

1. GROTIUSELLA FASCIATIFRONS new species.

Female:—Length, 1.15 mm.

Dark metallic aeneous green, the wings hyaline, the face with two cross-stripes of silvery white, one above, the other below, the antennæ; vertex more or less whitish; legs white except the concolorous coxæ, the femora proximad (to tip in caudal femur) and a band around intermediate tibiæ faintly (distinct on caudal femur), sooty. Antennæ concolorous, the scape silvery white except above at tip, the first funicle joint subglobular, the others stout but distinctly wider than long, the club short.

Described from one female captured by sweeping in forest, October 24, 1912.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1929*, Queensland Museum, the above specimen on a slide.

EUPLECTROPHELINUS new genus.

Female:—Nonmetallic. Head triangular, the eyes widely separated and moderately small, the antennæ inserted far down on the face, somewhat near the clypeus, below the ventral ends of the eyes, 9-jointed with two ring-joints (the first very short), the club ovate, solid; scape slender. Scutellum with four dorsal grooved lines, the mesal one in the usual lateral position, the lateral ones dorso-lateral but distinct. Abdomen shortly petiolate, the second segment occupying about half the surface. Postmarginal vein longer than the well developed stigmal. Pronotum transverse quadrate; axillæ not advanced. Propodeum strongly tricarinate, the spiracle oval, moderate in size. Mandibles not seen. Hind femora stout.

Male:—Not known.

Type: The following species.

1. EUPLECTROPHELINUS SAINTPIERREI new species.

Female:—Length, 1.80 mm.

Red; wings hyaline; face of pronotum, thoracic notum on each side of postscutellum, most of propodeum (except cephalo-laterad), distal third or more of abdomen and flagellum black. Legs, scape, petiole and proximal two thirds or less of abdomen brownish yellow. Pedicel elongate, a little longer than the cylindrical first funicle joint which is much longer than the following funicle joints of which 2 is subquadrate, the others a little shorter and wider, club longer than pedicel. Proximal tarsal joint of hind legs rather long. Thorax with isolated, long black setæ, finely polygonally reticulated, the propodeum similarly sculptured. Segment 2 of abdomen glabrous.

From one female captured by sweeping in open forest, September 16, 1913.

Habitat: Kuranda, Queensland.

Type: No. *Hy 1930*, Queensland Museum, the above specimen on a tag, hind tibiæ, head and a fore wing on a slide.

DIAGNOSIS OF THE OPHELININE EULOPHIDÆ.

FEMALES. AUSTRALIA.

The tribe is characterised by bearing two normal spurs on the caudal tibiæ.

I. Scutellum with two grooved lines.*

1. Antennæ with two ring-joints.

Funicle of antenna 4-jointed, the club 3-jointed, the antennæ 11-jointed; metallic.

Abdomen distinctly petiolate; grooves of scutellum joining around distal margin; propodeum strongly tricarinate; mandibles 7-dentate.

Alophomorphella Girault (Type: *A. illustris* Girault).

Abdomen sessile; grooves of scutellum not joining around distal margin, merely convergent; propodeum with a distinct median carina with a short sulcus on each side of it at middle; lateral carinæ absent.

Alophomorpha Girault (Type: *A. pulchra* Girault).

Funicle of antenna 4-jointed, the club 2-jointed, the antennæ 10-jointed.*

Abdomen subsessile, long-ovate; propodeum with a median carina and a short neck, the median carina really a pair of very thin, parallel carinæ; segments 3 and 4 of abdomen subequal, longest; mandibles 6-dentate. Nonmetallic. **Sympiesomorphelleus** Girault (Type: *S. suttneri* Girault).

Partly metallic; abdomen subsessile, short ovate; propodeum tricarinate; antennæ inserted below the ventral ends of the eyes; mandibles 13-dentate.

Parentedon Girault (Type: *P. australis* Girault).

2. Antennæ with only one ring-joint; funicle 4-jointed, the club 2-jointed.

Propodeum tricarinate; nonmetallic.

Grooved lines of scutellum consisting of isolated punctures.

Diglyphomorphomyia Girault (Type: *D. nigriscutellum* Girault).

Propodeum without lateral carinæ; metallic.

Grooved lines of scutellum normal.

Diglyphomorphella Girault (Type: *D. delira* Girault).

II. Scutellum without grooves.

1. Antennæ with two ring-joints; the funicle 4-, the club 3-jointed.

Propodeum with a median carina; abdomen conic-ovate, depressed, sessile; mandibles about 5-dentate; metallic. **Opheliminus** Girault (Type: *O. grotiusi* Girault).

2. Antennæ with only one ring-joint; the funicle 4-, the club 2-jointed.

Propodeum short, noncarinate, the abdomen sessile; parapsidal furrows attaining the advanced axillæ; marginal vein about two and a half times the length of the stigmal; flagellum somewhat fusiform, stout.

Grotiusella Girault (Type: *G. fasciatifrons* Girault).

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* Scutellum with four grooved lines . . . . **Euplectrophelinus** (see description).

3. Antennæ without ring-joints; funicle 4-jointed, the club solid.
Propodeum apparently with a median carina and no others; abdomen sessile, conic-ovate, short; postmarginal vein longer than the stigmal; metallic.
Alophomopsis Girault (Type: *A. spenceri* Girault).

The genus *Grotiusella* should be transferred to the Eulophini, perhaps. Its 2-jointed club separates it from *Eluophus* (also the 4-jointed funicle).

Subfamily EULOPHINÆ.

Tribe EULOPHINI.

Genus EULOPHUS Geoffroy.

Antennæ inserted below the middle of the face, 9-jointed, noncompressed, with one ring-joint, the funicle and club each 3-jointed, the former black. Thorax not robust, the scutellum simple, the propodeum usually tricarinate, the median carina always present. Wings hyaline, the marginal vein not long but only about twice the length of the stigmal.

This genus appears to be very rare in Australia if not elsewhere. The large number of species in the catalogue of De Dalla Torre (1898) in most instances, I dare say, belong elsewhere and in this category are the species of Walker's listed below. Unless very strikingly coloured or characteristic in other ways, it would be hazardous to attempt to identify them at this distance from the types and for the present they had best be left alone. Whoever attempts their identification must show that the types have been examined.

1. EULOPHUS CICUTA Walker.

De Dalla Torre, 1898, p. 59.

Habitat: Sydney, New South Wales.

The scutellum bears two grooved lines. This species is probably the representative of an undescribed genus near *Diaulomorpha* Ashmead, the antennæ probably 9-jointed with one ring-joint and as in *Eulophus*.

2. EULOPHUS ITEA Walker.

De Dalla Torre, 1898, p. 62.

Habitat: Tasmania (Hobart).

3. EULOPHUS TELESTAS Walker.

De Dalla Torre, 1898, p. 68. (The specific name is misspelled in the catalogue.)

Habitat: Sydney, New South Wales.

Genus ASYMPIESIELLA Girault.

Like *Sympiesis* but the club only 2-jointed, the propodeum with only an abbreviated median carina at base or with a complete median carina and incomplete lateral ones; spiracle large, oblong-oval; male antennæ with rami; abdomen long and conically produced; postmarginal vein over thrice the length of the stigmal, the marginal over five times the length of the stigmal; one ring-joint, the antennæ 9-jointed. Pronotum only half the length of the scutum.

1. ASYMPIESIELLA NELSONENSIS (Girault) Female, male. Genotype.

Sympiesis nelsonensis Girault.

Bright metallic purplish blue; wings hyaline; coxæ white, the legs white, the tarsi fuscous. Head and thorax roughly polygonally reticulated, the axillæ smoother, the propodeum smooth. Antennæ black, the first funicle joint longest of the four, about twice the length of 4. Propodeum with a short median carina at base, the lateral carinæ absent.

In the male, the hind femur is metallic, the axillæ, scutellum and distal half of scutum metallic green, the abdomen with a whitish stripe across some distance out from base. Antennæ with three long rami, 9-jointed, funicle 4 over twice the length of the club joint, longest of the whole, joint 1 of funicle subequal to the pedicel.

Habitat: Nelson (Cairns), Queensland. Forest.

Type: No. *Hy 1931*, Queensland Museum.

2. ASYMPIESIELLA PROSERPINENSIS (Girault). Female.

Sympiesis proserpinensis Girault.

Dark steel blue, not bright, the propodeum bright metallic green, the coxæ blue, the legs white, the tarsi more or less fuscous; wings hyaline. Head and thorax raised polygonally reticulated forming areas nearly like punctures; propodeum similarly sculptured but smooth and shiny, scaly. A complete median carina on propodeum and a more or less irregular lateral carina. Mandibles 6-dentate; funicle joints at apex armed with nipple-like projections. Otherwise as in *nelsonensis*. Male unknown.

Habitat: Proserpine, Queensland. Forest.

Type: No. *Hy 1932*, Queensland Museum.

Genus EULOPHINUSIA Girault.

Antennæ 8-jointed, the funicle 4-jointed, the club solid, one ring-joint. Scutellum simple. Propodeum with a short median carina. Mesopostscutellum rather large. Postmarginal vein a third longer than the stigmal, the marginal vein shorter than the submarginal, about two and a quarter times the length of the stigmal. Mandibles with four or five minute teeth. Abdomen ovate.

1. EULOPHINUSIA CYDIPPE Girault. Female. Genotype.

Dark metallic green, the abdomen coppery, the wings hyaline, the antennæ dusky; legs yellowish white but the coxæ more or less concolorous; thorax densely scaly reticulate but the scutellum and propodeum much finer, opaque or very finely alutaceous. Joints 1 and 2 of funicle longer than wide, subequal, longest, the remaining two more or less equal, wider than long; club short, longer than any of the funicle joints.

Habitat: Thursday Island, Torres Strait. Forest.

Type: No. *Hy 1933*, Queensland Museum.

Genus PSEUDOPHELIMINUS Girault.

Like *Notanisomorphella* Girault but the abbreviated median carina at base of propodeum, the shorter pronotum, the absence of lateral grooves on the propodeum and the elongated,

depressed abdomen are characteristics. Pronotum only half the length of the scutum; abdomen sessile; mandibles 7-dentate. Antennæ 10-jointed, with two ring- and club joints. Scutellum simple. Metallic. Postmarginal vein slightly longer than the stigmal.

1. PSEUDOPHELIMINUS LONGIVENTRIS Girault. Female. Genotype.

Bright aeneous green with bluish tinges, the wings hyaline, the coxæ concolorous, the legs white; abdomen coppery black. Thorax polygonally reticulated, the propodeum smooth and shining (very faintly reticulated). Scape white, flagellum black, the first funicle joint as long as the club, the proximal joint of the latter slightly longer than wide, shorter than funicle 4.

Habitat: Nelson (Cairns), Queensland. Braconid cocoons.

Type: No. *Hy 1934,* Queensland Museum.

GENUS NOTANISOMORPHELLA Girault.

Scutellum without lateral grooves; antennæ 10-jointed with two ring- and club-joints; pronotum not as long as the scutum; propodeum with a strong, long median carina, the lateral carinæ represented by a curved line of foveæ; abdomen sessile. Mandibles 6-dentate.

1. **NOTANISOMORPHELLA AUSTRALIENSIS** Girault. Female. Genotype.

Dark metallic blue, the propodeum and base of abdomen dorsad, green; coxæ blue, the legs white; wings hyaline; scape and parts of pedicel white, rest of antennæ black. Funicle 1 as long as the club, joints 2 and 3 subequal, 4 shortest of the funicle but distinctly longer than wide. Thorax sculptured with raised polygonal figures, the postscutellum and propodeum shining yet scaly. First ring-joint short.

Habitat: Nelson and Kuranda, Queensland. Frequent.

Type: No. *Hy 1935,* Queensland Museum.

2. NOTANISOMORPHELLA FEMORATUS new species.

Female: Length, 2.40 mm.

Dark aeneous green, the distal half of abdomen purplish black, the proximal half with a tolerably large, ovate orange yellow spot centrally. Coxæ and femora concolorous, the knees broadly and hind tibiæ brownish yellow; tarsi and other tibiæ white. Wings hyaline; marginal vein over thrice the length of the stigmal which is only about half the length of the postmarginal. Whole thorax reticulately punctate. Abdomen with a short but distinct petiole, depressed, conic-ovate. Spiracular sulcus of propodeum shallow and broad, somewhat broken but not foveate, its mesal margin carinate; spiracle oval, moderate. Marginal vein a little longer than submarginal. Mandibles about 7-dentate. Scape white, not long, the flagellum black, compressed; funicle 1 subelongate, nearly as long as the scape, a little longer than the club, joint 2 a third shorter, 4 quadrate; second club joint much the smaller, its nipple distinct; funicle joints subpedunculate, clothed with stout, flattened setæ; pedicel very short. Pronotum only a third the length of the scutum (as seen from dorsal aspect). Hind tibial spurs moderate in length, stout.

Male:—Not known.

Described from one female captured by sweeping in jungle, September 12, 1913.

Habitat: Kuranda, Queensland.

Type: No. *Hy 1936,* Queensland Museum, the above specimen on a tag, the head on a slide.

NECREMNOIDES new genus.

Female:—Antennæ 10-jointed with two ring-joints, the club 2-jointed, ending in a stout spur; scutellum simple; propodeum tricarinate; abdomen conic-ovate, sessile; mandibles 5-dentate. Hind tibial spurs moderately stout. Marginal vein a little over twice the length of the stigmal which is slightly shorter than the postmarginal. Second abdominal segment occupying somewhat less than a fourth of the surface. Median carina paired, diverging at base (cephalad), the lateral carinæ straight, near (mesad of) the small, round spiracle.

Male:—Not known.

Type: The following species.

1. NECREMNOIDES TRICARINATUS new species.

Female:—Length, 1.33 mm.

Olive green, metallic, the wings hyaline, the legs reddish brown including the coxæ; antennæ black, the scape reddish brown except at distal fourth, the pedicel shorter than any of the funicle joints of which the first is slightly the longest, the other three gradually shortening, all oval; thorax polygonally reticulated, the lines not raised, the sculpture finer on the axillæ and at base of scutellum. Propodeum shining, pronotum about a third the length of the scutum or slightly more. Marginal vein about equal to the submarginal or a little longer.

Described from two females captured by sweeping in forest, August 24 and 29, 1913.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1937*, Queensland Museum, the above specimen on a tag, the head and hind legs on a slide.

Two more females were captured in forest, August 31, 1913.

2. NECREMNOIDES FLAVIVENTRIS new species.

Female:—Length, 1.65 mm.

Burnished black, the abdomen orange yellow with a row of black dots along each edge (dorsad) and the extreme tip black. Wings hyaline. Scape and legs orange yellow (including coxæ). Densely, reticulately punctate including the propodeum. Marginal vein thrice the length of the stigmal. Pronotum transverse. Parapsidal furrows barely indicated, the scutum short. Propodeum tricarinate. Antennæ with two ring-joints, the pedicel much shorter than the first funicle joint which is thrice longer than wide (besides two funicle joints, rest of antenna missing). Mandibles with six teeth. Otherwise like the genus to which referred. Abdomen short, conic ovate.

Male:—Not known.

From one female captured by sweeping in forest, April 9, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1938*, Queensland Museum, the above specimen on a tag, the head and hind legs on a slide.

This species is probably not a member of this genus.

NOTANISOMORPHOMYIA new genus.

Type: The following species.

1. NOTANISOMORPHOMYIA ALBICOXA new species

Female:—Length, 1.80 mm.

Like the type species of *Notanisomorphella* but the coxæ are also white and the propodeum has complete lateral carinæ joined to the median carina by a cross-carina about centrally. Also the body is dark metallic green, the abdomen darker. Propodeum with a distinct neck, the first abdominal segment ring-like, the abdomen certainly subpetiolate. Mandibles with five teeth, the inner tooth very minute. Antennæ black, scape white toward base, the fourth funicle joint distinctly longer than the first club joint, long yet shortest of funicle. Axillæ much smoother than scutellum, the postscutellum and propodeum polished, without visible sculpture.

Male:—Not known.

Described from one female captured by sweeping the jungle along a forest streamlet, August 1, 1913.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1939*, Queensland Museum, the above specimen on a tag, the head and hind legs on a slide.

DIAULOMELLA new genus.

Type: The following species.

1. DIAULOMELLA AUSTRALIENSIS new species.

Female:—Length, 1.60 mm.

Dark metallic green, the abdomen darker, and with a long central yellowish area out from base which is more or less prong-shaped and with the handle proximad. Wings hyaline; postmarginal vein over twice the length of the stigmal. Legs white except coxæ. Metathorax with a median carina only at base, no distinct lateral carinæ. Mandibles with six teeth. Antennæ black, the scape white, the pedicel hardly longer than wide, the first three funicle joints long and subequal, each as long as the club without its short distal joint. Pronotum almost as long as the scutum. Thorax scaly.

Male:—Not known.

Described from one female captured by sweeping jungle growth along a forest streamlet, June 10, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1940*, Queensland Museum, the above specimen on a tag, the head and hind legs on a slide.

Differs from *Dimmockia* Crawford in having one more antennal joint, the club being 3-jointed instead of two.

DIAULOMYIA new genus.

Female:—Allied with *Diaulinus* Schulz but the antennæ 11-jointed with two ring-joints, the club 3-jointed, the third joint very small and with a minute nipple. Scutellum with two grooves. Propodeum with a strong median carina, glabrous. Mandibles with 8 teeth, the 6 inner ones minute. Stigmal vein about half the length of the marginal or somewhat less,

shorter than the postmarginal, the fore wing with a fuscous blotch under the marginal vein. Abdomen sessile, ovate, depressed, as long as the thorax. Parapsidal furrows half complete, not very distinct. Propodeum with a more or less distinct lateral sulcus from caudad. Marginal vein somewhat shorter than the submarginal.

Male:—Not known.

Type: The following species.

1. DIAULOMYIA MACULATIPENNIS new species.

Female:—Length, 2.60 mm.

Dark metallic green, the scutellum, propodeum and abdomen coppery and darker; blotch on fore wing ovate, under the marginal and stigmal veins, its disto-cephalic end touching the stigmal knob. Coxæ and femora concolorous, the tibiæ and tarsi white; inner half or more of hind femur white, also. Scape white, antennæ black, the first funicle joint elongate, over twice the length of the pedicel, 2 and 3 subequal, a third shorter, 4 hardly longer than wide, 3 and 4 subpedunculate; first funicle joint half the length of the slender scape. Pedicel brown. First ring-joint short. Scutum coarsely reticulated with raised lines, the scutellum finely scaly.

Described from one female captured by sweeping in a jungle pocket, July 27, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1941*, Queensland Museum, the above specimen on a tag, the head and hinds legs on a slide with the type head of *Elachertetrastichus purpureus* Girault.

Genus DIAULOMORPHA Ashmead.

The generic diagnosis given by Ashmead (1904) disagrees with the original description and since the former is not stated to be given upon re-examination, I must follow the latter. According to the original description the antennæ are 8-jointed, the funicle 3-jointed (leaving as alternatives 2- or 3-jointed club and one or no ring-joints); flagellum subcompressed; postscutellum half the length of the scutellum. Metathorax (propodeum) short, with a median carina. Marginal vein nearly as long as the submarginal, the stigmal and postmarginal veins more than half the length of the marginal. Scutellum with two delicate grooved lines.

1. DIAULOMORPHA AUSTRALIENSIS Ashmead. Female. Genotype.

Ashmead, 1900, pp. 347-348.

Golden green, reticulately shagreened, the wings hyaline; antennæ black, joints 1 and 2 of funicle longer than wide, joint 3 subquadrate; legs brownish yellow, the coxæ concolorous, the hind coxæ golden green, strongly punctate.

Habitat: Australia (? New South Wales).

Type: Cat. No. *4902*, United States National Museum, Washington, D.C., U.S.A.

In the diagnosis, Ashmead (1904) gives the following: Scutellum with two dorsal grooved lines; antennæ inserted below the middle of the face; cephalic aspect of the head nearly twice wider than long; stigmal vein nearly two thirds the length of the marginal; pronotum semicircular, not short, narrower than the mesonotum; abdomen ovate, depressed above, hardly as long as the thorax; antennæ 9-jointed, the flagellum subclavate, the funicle 4-jointed.

DIAGNOSIS OF THE EULOPHINE EULOPHIDÆ.

AUSTRALIA. FEMALES.

The tribe is characterised by the double caudal tibial spurs. Rarely nonmetallic.*

I. Scutellum with two grooved lines.

Antennæ 11-jointed with two ring-joints, the club 3-jointed, the third joint very small and with a minute nipple; propodeum with a strong median carina; abdomen sessile, ovate; stigmal vein about half the length of the marginal.

Diaulomyia Girault (Type: *D. maculatipennis* Girault).

Antennæ 8-jointed with a ring-joint, the funicle 3-jointed; head from cephalic aspect much wider than long; stigmal vein nearly two thirds the length of the marginal; abdomen ovate, depressed; propodeum with a median carina.

Diaulomorpha Ashmead (Type: *D. australiensis* Ashmead).

II. Scutellum without grooves, simple.

Funicle 4-jointed.

Club solid.

Antennæ 8-jointed with one ring-joint; propodeum with a short median carina; postmarginal vein a third longer than the stigmal; abdomen sessile.

Eulophinusia Girault (Type: *E. cydippe* Girault).

Club 2-jointed; two ring-joints.

Marginal vein long, thrice longer than the stigmal.

Pronotum not a third as long as the scutum; propodeum with a strong, long median carina, the lateral carinæ represented by a curved line of foveæ; abdomen sessile or subpetiolate.

Notanisomorphella Girault (Type: *N. australiensis* Girault).

Pronotum the same; propodeum with a distinct neck and tricarinate, the lateral carinæ joined to the median carina by a cross carina about centrally; abdomen subpetiolate.

Notanisomorphomyia Girault (Type: *N. albicoxa* Girault).

Pronotum half as long as the scutum; propodeum with an abbreviated median carina at base; abdomen sessile, elongate, depressed; mandibles 7-dentate. **Pseudophelimus** Girault (Type: *P. longiventris* Girault).

Marginal vein shorter.

Pronotum somewhat shorter; propodeum quadricarinate, the median carina paired; abdomen shorter; marginal vein a little over twice the length of the stigmal.

Necremnoides Girault (Type: *N. tricarinatus* Girault).

Club 3-jointed; one ring-joint.

Postmarginal vein over twice the length of the stigmal; metathorax without carinæ except an abbreviated median one at base; pronotum almost as long as scutum; marginal vein thrice or more the length of the stigmal.

Diaulomella Girault (Type: *D. australiensis* Girault).

Club 2-jointed; one ring-joint.

Postmarginal vein over thrice the length of the stigmal, the marginal over five times the length of the stigmal; propodeum with only an abbreviated median carina at base or with a complete median carina and incomplete lateral ones, the spiracle large, oblong-oval; male antennæ with *rami*; abdomen long and conically produced. Antennæ 9-jointed.

Asympiesiella Girault (Type: *Sympiesis nelsonensis* Girault).

* If these diagnoses disagree with the descriptions, they are to be held as corrective.

Funicle 3-jointed, the club 3-jointed; one ring-joint.

Antennæ inserted below the middle of the face, the funicle black; propodeum with a distinct median carina and usually lateral ones; wings hyaline, the marginal vein not long, usually only about twice the length of the stigmal. Flagellum not compressed. **Eulophus** Geoffroy (Type: *Ichneumon pectieornis* Linnæus).

HEMIPTARSENINI.

NECREMNOMYIA new genus.

Female:—Like *Hemiptarsenus* Westwood but the antennæ 9-jointed with two short ring-joints, the club solid, short. Parapsidal furrows barely indicated; mandibles with 6-7 teeth. Propodeum with a distinct median carina but no others, the spiracle near the postscutellum, small and round. Stigmal vein short, not a sixth the length of the marginal vein and slightly shorter than the postmarginal. Scutellum simple. Abdomen sessile, slender, conic-ovate, somewhat longer than the head and thorax combined. Funicle 4-jointed. Marginal vein slightly shorter than the submarginal.

Male:—Not known.

Type: The following species.

1. NECREMNOMYIA SAINTPIERREI new species.

Female:—Length, 1.20 mm.

Dark metallic blue, the wings hyaline; tibiæ and tarsi more or less white; thorax reticulated with raised lines, the propodeum subglabrous; femora dusky; scape and pedicel dark blue, rest of antenna dusky; pedicel very short, as long as wide, much smaller than any of the funicle joints which are all short and subglobular, but moderately large and stout, the first somewhat the largest; club distinctly longer than any of the funicle joints, with a minute nipple.

Male:—Unknown.

Described from one female captured August 25, 1913, by sweeping in forest.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1942*, Queensland Museum, the above specimen on a tag, the head and a hind leg on a slide.

SYMPIESONECREMNUS new genus.

Female:—Face sunken, the antennæ inserted a little below its middle, 10-jointed, the club 2-jointed, the funicle compressed, 4-jointed, the joints subpetiolate. Scutellum simple, the parapsidal furrows hardly evident cephalad; mandibles about 7 or 8-dentate. Marginal and submarginal veins long, subequal, four or more times the length of the stigmal, the latter very short and somewhat shorter than the postmarginal. Abdomen sessile, conic-ovate, about as long as the rest of the body. Propodeum with a pair of narrow median carinæ which are rather close together but diverge at apex; lateral carinæ and sulci absent, the spiracle large, elliptical; apparently, a spiracle-like fovea at cephalic margin somewhat more than half way to the spiracle from the median carina. Hind tibial spur stout. Pronotum transverse.

Male:—Not known.

Type: The following species.

1. SYMPIESONECREMNUS BOASI new species.

Female:—Length, 1.85 mm.

Metallic blue, the wings hyaline, the legs and antennæ concolorous (except most of cephalic tibiæ and all tarsi which are brownish, the tarsi paler); all funicle joints much larger than the pedicel which is but slightly longer than wide; funicle 1 longest, distinctly longer than wide, joints 2-4 subequal, oval, slightly longer than wide and more or less equal to club joint 1, the larger of the two club joints; club terminating in a minute nipple. Thorax moderately finely, polygonally reticulated, the lines raised, the propodeum similarly sculptured but smoother.

Described from one female captured by sweeping in the jungle, May 10, 1913.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1943,* Queensland Museum, the above specimen on a tag, the head and hind tibiæ on a slide.

Dedicated to Franz Boas for his book The Mind of Primitive Man.

ELACHERTONECREMNUS new genus.

Female:—Pronotum transverse; scutum long, large, the parapsidal furrows delicate and only at cephalic third; scutellum oblate spherical, without grooves, postscutellum triangular, propodeum distinct, moderately short, with a median carina, no others. Abdomen sessile, depressed, pointed ovate, no longer than the thorax, segment 2 longest, occupying a fourth of the surface. Head somewhat wider than long, the antennæ short and stout, inserted distinctly below the middle and slightly below the ventral ends of the eyes which are short, the scape short, the pedicel also, the funicle 4-jointed, the joints wider than long, increasing in width distad, the club missing; funicle joints subpetiolate; one short ring-joint. Mandibles broad, with one short, acute outer tooth and about nine inner minute, comblike ones. Hind tibial spur very small, the hind coxæ strongly compressed, the hind femur swollen somewhat. Body metallic marked with lemon yellow. Propodeal spiracle small. With the habitus of *Zagrammosoma* Ashmead.

Male:—Not known.

1. ELACHERTONECREMNUS CIRCUMJECTUS new species.

Female:—Length, 1.15 mm.

Dark metallic green, the head golden yellow and with two rather broad dark greenish parallel stripes across the face from side to side, the ventral one passing through the antennæ; upper half or more of occiput concolorous; outer margins of axillæ, scutellum all around (except at meson of caudal margin) and the lateral margins of the triangular postscutellum, golden or yellow. Thorax finely, densely scaly, the propodeum glabrous centrally. Abdomen purplish black. Scape white, dusky black at distal half; flagellum black. Eyes softly pubescent. Mandible white, along tip brown.

From one female captured in jungle by sweeping, September 13, 1913.

Habitat: Kuranda, Queensland.

Type: No. *Hy 1944,* Queensland Museum, the above specimen on a tag.

The species may easily be recognised by its peculiar coloration.

DIAGNOSIS OF HEMIPTARSENINE EULOPHIDÆ.

The tribe is characterised by bearing but one spur on the caudal tibiæ.

Scutellum with grooved lines; funicle 4-jointed; two ring-joints.

Club solid, the antennæ 9-jointed; propodeum with a median carina only, the spiracle small and round; stigmal vein not a sixth the length of the marginal; abdomen sessile, slender, conic-ovate. Mandibles 6 or 7-dentate.

Necremnomyia Girault (Type: *N. saintpierrei* Girault).

Scutellum without grooved lines; funicle 4-jointed.

Antennæ 10-jointed, two ring-joints, the club 2-jointed; propodeum with a median carina only, the spiracle large, elliptical; stigmal vein about a fourth or more the length of the marginal. **Sympiesonecremnus** Girault (Type: *S. boasi* Girault).

Antennæ with but one ring-joint; propodeum the same but the spiracle small; hind tibial spur small; mandibles about 10-dentate.

Elachertonecremnus Girault (Type: *E. circumjectus* Girault).

(*Ascotolinx*, p. 256.)

TABLE TO THE SUBFAMILIES OF THE EULOPHIDÆ.*

Submarginal vein of fore wing usually entire, not distinctly broken distad just before curving up to the marginal or not with all of the long proximal portion proximad of the bend abruptly slenderer than the short curved portion. Submarginal vein usually as long as or longer than the marginal, the stigmal rarely very short or sessile, the postmarginal vein always present, usually as long as or longer than the stigmal. Species metallic or nonmetallic, usually rather large and slender, comprising the larger forms of the family. Mandibles most frequently 5-dentate or more, rarely 3-dentate or less. Scutellum frequently with two grooved lines. Sculpture usually scaly. Parapsidal furrows complete or incomplete. Propodeum usually long. Tarsi 4-jointed.

Parapsidal furrows complete, entire, usually distinct; abdomen frequently petiolate, the body frequently nonmetallic. Rarely, the hind tibial spurs very long, the axillæ not advanced. **Elachertinæ.**

Parapsidal furrows wanting or incomplete, usually present along cephalic third or half; abdomen usually sessile, the body usually metallic, the hind tibial spurs never very large. **Eulophinæ.**

Submarginal vein of fore wing broken distad just before curving up to the marginal or the long proximal portion abruptly slenderer than the short, distal curved portion, the vein usually distinctly shorter than the marginal, frequently much shorter; stigmal vein usually of moderate length, frequently short and sessile, rarely long and slender; postmarginal vein most frequently absent or only slightly developed, rarely as long as or longer than the stigmal; species metallic or nonmetallic, usually of moderately small size, rarely minute or large, usually short but frequently slender, comprising the smaller forms of the family. Mandibles most frequently bi- or tridentate. Scutellum frequently with from two to four grooved lines, rarely with five, the scutum often with a median groove. Parapsidal furrows variable, the sculpture usually polygonal reticulation or very fine shagreening. Tarsi sometimes 5-jointed.

Submarginal vein usually much shorter than the marginal which is frequently very long, the postmarginal vein variable, usually as long as the stigmal, rarely very short, sometimes much longer than the stigmal, the latter of moderate length but frequently sessile or subsessile; metapleura small, the propodeum variable, the

* This table is intended for the student unfamiliar with the subfamilies but it should be used with caution since exceptions are occasionally met with; if the main characters fail, use composites.

abdomen often petiolate. Parapsidal furrows frequently incomplete, sometimes wanting. Second abdominal segment often lengthened. Sculpture most frequently a scaly reticulation, the lines often raised, rarely punctate. Scutellum often with two grooved lines, rarely with three, the scutum rarely with an incomplete grooved median line. **Entedoninæ.**

Submarginal vein usually more or less equal to the marginal, the postmarginal vein always wanting, rarely slightly or fully developed, the stigmal usually of moderate length, sometimes sessile. Abdomen very rarely petiolate. Parapsidal furrows always complete, the mesopleura often without a femoral furrow. Sculpture usually very fine shagreening. Scutellum often with four grooves, rarely with two or five, the scutum frequently with a median groove.

Scutellum with four (rarely with two or five; if without grooves, the abdomen petiolate) grooved lines; mesopleura with a femoral furrow, antennæ usually inserted near the middle of the face, the funicle usually 3-jointed (rarely 2- or 4-jointed) and from one to four transverse-linear ring-joints present; abdomen usually sessile, rarely petiolate, never (?) with a phragma, the propodeum most frequently visible from above, long and with a median carina. Marginal fringes of fore wings rarely long, the fore wing never with an oblique hairless line back from the stigmal vein. Sculpture nearly uniform fine shagreening. Tarsi always 4-jointed, the strigils absent. Scutum frequently with a median groove. Metallic or nonmetallic. **Tetrastichinæ.**

Scutellum without grooved lines, rarely with a median groove; scutum rarely with a median groove; mesopleura often without a femoral furrow; antennæ inserted below the middle of the face, the funicle variable, sometimes absent or composed of ring-like joints; usually with from two to four joints, true ring-joints rarely present. Abdomen always broadly sessile and always (?) with a phragma, the propodeum very short and hidden; marginal fringes of fore wing frequently long and often there is an oblique hairless line back from the stigmal vein. Sculpture fine reticulation, alutaceous or fine punctation or striation, not uniform. Tarsi usually 5-, often, 4-jointed, the strigils always (?) strongly developed. Nonmetallic, rarely metallic (*Ablerus*). **Aphelininæ.**

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AUSTRALIAN HYMENOPTERA CHALCIDOIDEA.—V.*

The Family Perilampidae with the Descriptions of One New Genus and Four Species.

By A. A. Girault.

INTRODUCTION.

This family is a small one, represented commonly by a single cosmopolitan genus but in tropical countries there seem to be a number of gall-making genera which are just becoming known. Two of these are at present known to occur in Australia; the others occur in South America.

Family PERILAMPIDÆ.

Genus PERILAMPUS Latreille.

1. PERILAMPUS SALEIUS Walker.

Walker, 1839, p. 16.

"Sp. 1. *Peri. Saleius.* Mas. *Viridis aeneo-varius, abdomen-atrum, pedes fulvi, femora viridia, alæ limpidæ.*

"Viridis aeneo-varius; abdomen atrum; pedes fulvi; coxæ virides; femora viridia; ungues et pulvilli fusci; alæ limpidæ; squamulæ piceæ; nervi proalis fusci, metalis fusci. (Corp. long. lin. 4/5; alar. lin. 1½.)

"March; King George's Sound, Australia."

2. PERILAMPUS TASMANICUS Cameron. Female.

Cameron, 1912, pp. 646-647.

Dark blue, largely tinged with violaceus, especially on the head; a fiery red spot on apex of the mesonotum on each side and another at apex of mesopleura above the middle; apex of second and last segments of abdomen dark red. Legs dark blue to apex of femora, the hind tibiæ almost black; knees, each end of tibiæ and the tarsi testaceous. Wings hyaline, the veins fuscous. Antennæ black, fuscous beneath, pubescent. Head somewhat strongly striated, longitudinally so on vertex and front, curved on the former; occiput more closely, finely, transversely striate. Propodeum irregularly, obliquely striated. An oblique keel along the propleurum cephalad of middle, dividing the sclerite into two, of which the basal and smaller is irregularly striated, the apical smooth. Mesopleurum with a quadrate, smooth depression, longer than wide and at the upper basal half; rest of mesopleurum longitudinally striated.

Habitat: Tasmania (Hobart).

Type: Query.

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* Contribution No. 16, Entomological Laboratory, Bureau of Sugar Experiment Stations, Bundaberg, Queensland.

3. PERILAMPUS TASMANIENSIS Girault. Female.

Bronze, the abdomen darker; legs concolorous, the tibiæ greenish, the tarsi flavous; antennæ dark metallic; wings hyaline, the postmarginal vein longer than the stigmal. Scutellum unarmed at apex. Mandibles with three acute teeth, the lateral one long. Vertex and face striated. Funicle joints transverse, the first cup-shaped, very much longer than the pedicel; thirteen antennal joints, one ring-joint. Dorsum of abdomen finely punctulate. Club with an apparent fourth, nipple-like joint at apex (not counted here as a true joint).

Habitat: Tasmania (King Island).

Type: No. *I. 1247,* South Australian Museum, Adelaide.

4. PERILAMPUS AUSTRALIENSIS Girault. Female.

Metallic *cyaneus,* tinged with green about the head and abdomen; tarsi light yellow; cephalic knees and tibiæ brown; sculptured like *tasmaniensis* but the punctures on abdomen not quite so dense and the body is more robust. Club brown; funicle 1 longer than wide, 2 cup-shaped. Nipple-like apex of club absent.

Habitat: National Park, New South Wales.

Type: No. *I. 1248,* South Australian Museum, Adelaide.

5. PERILAMPUS MITTAGONGENSIS Girault. Male.

Metallic blue-green, the knees, venation and antennal club brown, the tarsi yellowish, the wings hyaline. Joints 1 and 2 of funicle subquadrate, subequal; postmarginal vein twice the length of the stigmal; smaller than *australiensis*; otherwise similar to the fourth species as listed here.

Habitat: Mittagong, New South Wales.

Type: No. *I. 1249,* South Australian Museum, Adelaide.

6. PERILAMPUS CAPENSIS Girault. Female.

Resembles *australiensis* and *mittagongensis* but smaller and the abdomen glabrous (dorsal aspect), with the fine sculpture on the last segment and lateral aspect of the others. Nearest to *mittagongensis* but somewhat smaller, the sculpture of head and thorax somewhat finer, the funicle brown, the head aeneous. From caudal aspect, the upper angles of the abdomen are not acute, the upper margin concaved, not straight as in *mittagongensis*; mesothorax brassy green.

Habitat: Capeville (Pentland), Queensland. Forest.

Type: No. *Hy 1948,* Queensland Museum.

7. PERILAMPUS CAIRNSENSIS Girault. Female.

Characterised by having all of the dorsal aspect of abdomen finely sculptured (rather dense pin-punctures). Differs from *australiensis* in being more robust, in having the flagellum and tarsi chocolate brown and in being dark aeneous green; from *mittagongensis* in the same details and also in that the femora are metallic green, not blue and the abdomen from caudal aspect is shaped differently; differs from *tasmaniensis* in being twice more robust, the abdomen more uniformly sculptured (in *tasmaniensis* being smooth and shining caudad of the second segment nearly to tip and coppery there) and the marginal vein is longer. Dark aeneous green, the legs concolorous.

Habitat: Cairns, Queensland.

Type: No. *Hy 1948,* Queensland Museum. Jungle or swamp?

8. PERILAMPUS QUEENSLANDENSIS new species.

Female:—Length, 2.00 mm.

Very dark metallic green, the abdomen shining black. Legs, scape and pedicel concolorous, the tarsi pale brown. Propodeum with a median carina, rugose, on each side of the median carina about the middle a large, subquadrate smooth area bounded by carinæ. Occiput circularly striate. Postmarginal vein a third longer than the stigmal, the venation brown. Second segment of abdomen without sculpture, shining, the third with pin-punctures which are numerous but not dense. Vertex smooth and also all of the head. Funicle and club uniformly chocolate brown. Genal sulcus present.

Male:—Not known.

Described from one female captured by sweeping foliage in a jungle, June 7, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1950*, Queensland Museum, the above specimen on a tag.

TABLE TO THE AUSTRALIAN SPECIES OF *PERILAMPUS* LATREILLE.

Wings hyaline.

Mesothorax with several fiery red spots, dorsad and laterad.

Dark blue. Legs concolorous except articulations, ends of tibiæ and tarsi, the tibiæ darker; antennæ black, fuscous beneath. Head striated, the occiput finely so; an oblique keel along the propleurum dividing it in two, the smaller sclerite of the two striated, the larger smooth. Mesopleurum longitudinally striated but with a subquadrate smooth depression at upper basal half.

tasmanicus Cameron.

Mesonotum without red spots.

Metallic green species.

All tibiæ yellow.

Abdomen blackish. *saleius* Walker.

All tibiæ metallic and concolorous.

Dark aeneous green; all dorsal aspect of abdomen with uniform, rather dense, fine pin-punctures; flagellum and tarsi chocolate brown; head sculptured. *cairnsensis* Girault.

The same but segment 2 of abdomen glabrous, the third with minute pin-punctures which are numerous but not dense; head smooth; funicle and club chocolate brown. Propodeum with a median carina, rugose but smooth on each side of median carina about the middle.

queenslandensis Girault.

(Compare *capensis.*)

Metallic blue species, tinged more or less with green.

Cephalic tibiæ brown.

Cyaneous, tinged with green about the head and abdomen; sculptured like *tasmaniensis* but punctures on abdomen not quite so dense; antennal club brown; funicle 1 longer than wide, 2 cup-shaped, others shorter; club 3-jointed, no apparent fourth joint at tip. *australiensis* Girault.

All tibiæ metallic and concolorous.

Metallic blue-green; knees, venation and antennal club brown; tarsi yellowish; joints 1 and 2 of funicle subquadrate; postmarginal vein twice the length of the stigmal. Sculpture of abdomen as in *australiensis*.
mittagongensis Girault.

The same but the fine sculpture of the abdomen is only on the distal segment and lateral aspect of the others; head aeneous; smaller; funicle brown; mesothorax bronzy green. *capensis* Girault.

Bronze species.

Tibiæ greenish, the abdomen darker bronze; tarsi flavous; antennæ dark metallic; vertex and face striated; funicle joints wider than long, 1 cup-shaped, much larger than the pedicel; club with an apparent fourth joint at apex; dorsum of abdomen finely punctate. *tasmaniensis* Girault.

Genus EPIPERILAMPUS Girault.

This genus is certainly very closely allied with *Trichilogaster* Mayr and is very probably a synonym of that genus. There is no doubt that it is a true member of this family. The same as *Perilampus* but the thorax not coarsely punctate, only with obscure scattered thimble punctures and transversely wrinkled and reticulated, the antennæ with two large ring-joints* and a well defined 3-jointed club, the distal joints of the funicle transverse; pedicel longer than funicle 1. Marginal, stigmal and postmarginal veins shortened yet moderately long, the postmarginal somewhat shortest of the three, the other two subequal. Antennæ inserted in the middle of the face. Scutellum simple. Axillæ barely separated inwardly. Second segment of abdomen occupying nearly half of the surface. The male is described beyond.

1. EPIPERILAMPUS XANTHOCEPHALUS Girault. Female. Genotype.

Orange yellow, the parapsides cephalo-mesad washed with metallic bluish, the propodeum and abdomen shining blackish or dark metallic bluish; at base, the abdomen with a conspicuous yellow marking which is incised medially on caudal margin; legs mostly dark metallic bluish, the cephalic tibiæ, the knees and tarsi brownish; submarginal vein brown, others lemon yellow. Fore wings lightly embrowned throughout and with a distinct smoky brown cloud under the apex of the submarginal vein, extending across but interrupted caudad of its middle by a clear, longitudinal streak. Discal cilia like minute pin-points, not dense. Scape yellow, dark above and at tip, the remainder of antenna brownish yellow washed with bluish; proximal joint of club equals distal funicle joint, both wider than long. Joints 2 and 3 of funicle subquadrate.

Habitat: Brisbane, Queensland.

Type: No. *Hy 1194*, Queensland Museum.

2. EPIPERILAMPUS CHANNINGI Girault. Female.

The same as the type species but the parapsides wholly concolorous and the stigmal vein is shorter, distinctly shorter than the marginal. Antennæ lighter.

Habitat: Quingilli (Cairns), Queensland.

Type: No. *Hy 1953*, Queensland Museum.

* Not true ring-joints but graduating in size with the funicle joints.

3. EPIPERILAMPUS SIGNIFICATUS new species.

Female:—Length, 2.25 mm.

The same as *xanthocephalus* but nearly the entire body is dark purplish blue except head, sides of scutellum at the middle, front tibiæ, scape, sides of scutum and its caudal third and the marking on the abdomen which are orange yellow; also the postmarginal vein is a little shorter and the first funicle joint subequal to joints 2 and 3 which in both species are somewhat wider than long (funicle 1 in *xanthocephalus* is somewhat longer than wide, plainly longer than the next two joints). The wings are somewhat clearer.

Male:—What appears to be the male is wholly dark purplish except cephalic tibiæ, the venation not pale brown but fuscous. Antennæ filiform, 13-jointed, the club 3-jointed but not widened as in the female, the two ring-joints shorter, distinct, the funicle joints large, all somewhat longer than wide, the first much longer than wide, longest, much longer than the globular pedicel which is somewhat smaller than the distal funicle joint; scape wholly blue, short. Club joints somewhat shorter than the distal funicle joint. Abdomen depressed. A little smaller than the female, the postmarginal vein a little longer.

Described from a single pair mounted on a card from the collections of the Queensland Museum with a female of *xanthocephalus* and labelled "Gall No. 6. Brisbane. H. Hacker. 19.7.1911."

Habitat: Brisbane, Queensland.

Type: No. *Hy 1951*, Queensland Museum, the above pair on a tag, female antennæ and a male antenna on a slide (together with an antenna of a female *xanthocephalus*).

I have re-examined the types of *xanthocephalus* for the third or fourth time. The axillæ have a small bluish spot near centre of cephalic margin.

4. EPIPERILAMPUS DILUTIVENTRIS new species.*

Female:—Length, 2.40 mm.

Like *xanthocephalus* but the conspicuous orange yellowish, crescentic, thick cross-marking in centre of base of distal half of abdomen entirely wanting and the postmarginal vein is a little longer than the stigmal; also the scutellum is washed with more or less bluish centrally, the parapsides unmarked, the wings hyaline except for the usual stain from near apex of submarginal vein which is widely interrupted caudad. First two pairs of legs yellowish. The antenna differs in that only the third joint appears like a ring-joint, the next two or three much wider than long, the ninth joint large, subquadrate, much the largest (longest and widest) of the funicle (in *xanthocephalus*, 1 of the funicle is the longest, 6 the shortest and widest, not counting the two ring-joints of which the second is the wider). The ring joint is only a little over half the width of the joint following it. The scape is stouter. (Club not wholly seen.)

Male:—Not known.

Described from one female in the collections of the Queensland Museum, mounted on a card labelled "Bred from gall No. 14."

Habitat: Queensland (? Brisbane).

Type: No. *Hy 1952*, Queensland Museum, the above specimen and a slide bearing two broken antennæ.

* The second species of *Melanosomella* Girault which belongs here. *Cœlocybella* Girault belongs here: see p. 313.

PERILAMPOIDES new genus.

Female:—Like *Epiperilampus* Girault but the antennæ only 12-jointed, there being but five joints in the funicle, the club 3-jointed; flagellum clavate. Also the axillæ are separated a short distance, the parapsidal furrows ending at middle of cephalic margin of each axilla. Scutum with a shallow median groove, the scutellum large, ovate, longer than usual but not extending over all of propodeum; abdomen large, globular, somewhat as in the Cynipidæ, the ovipositor very short, near apex. Thorax impunctate. Hind tibial spurs single. Mandibles bidentate, the inner tooth broadly truncate. Axillæ very long, triangular. Scutellum with a short median groove at base. In *Epiperilampus,* the axillæ are barely separated inwardly.

Male:—Not known.

Type: The following species.

1. PERILAMPOIDES BICOLOR new species.

Female:—Length, 3.75 mm.

Bright orange yellow, the face and mesal portion of pronotum, scutum a little at meson cephalad, propodeum and abdomen jet black; also mesoventer mesad and the vertex; antennæ and legs pale yellow; wings hyaline, the submarginal vein black, the others colorless, a rounded sooty spot on blade of fore wing just caudad of the apex of submarginal vein. Thorax finely shagreened (raised dots). Distal funicle joint largest, about as long as the pedicel, cup-shaped but wider than long; second club joint shortest. Antennæ suffused with dusky. Hind tibia more or less dusky.

Described from two females reared from pupæ filling the entire cavity of small round isolated galls on the foliage of *Eucalyptus* in forest early in August, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1954*, Queensland Museum, one of the above specimens on a tag, the hind leg and a head on a slide.

This genus is evidently a true gall-maker allied as is *Epiperilampus* with Mayr's three gall-making genera. *Epiperilampus,* indeed, seems to me to be the same as Mayr's *Trichilogaster* but I cannot tell because the original description of that genus is not available and there may be differences in the antennæ. These gall-making genera seem true perilampids in spite of the long scutellum in some of them and the longer, depressed abdomen. They have the habitus, in some cases, of the Encyrtid tribe Taneostigmini but there are no encyrtid characters. They are allied with the Cleonymidæ and Eurytomidæ.

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AUSTRALIAN HYMENOPTERA CHALCIDOIDEA—VI.*

The Family Pteromalidae with Descriptions of New Genera and Species.

By A. A. Girault.

INTRODUCTION.

Whole portions of this great family are barely represented in the Australian fauna. The Sphegigasterini seems the most numerously, the Pteromalini the least, represented of the tribes. The large series of old-world genera are rarely met with and species of the type genus are few, one species only having been found so far in our extensive collections. This paper includes a large number of the genera but the species must be much more numerous than the few recorded here.

Tribe PTEROMALINI.

Genus MERAPORUS Walker.

1. MERAPORUS NIGRIVIRIDIS Girault. Female.

Dark metallic green, the head and thorax (excluding the propodeum) bronze, the abdomen shining black; fore wings with a rather obscure, round stained spot against the submarginal vein just before its apex, otherwise hyaline. Legs deep fuscous, the coxæ concolorous; antennæ black, the scape and pedicel brownish. Marginal vein slightly longer than stigmal the latter slightly longer than postmarginal. Punctate. Propodeal spiracle long-elliptical, the median carina half complete from base, the lateral ones complete. Parapsidal furrows about half complete. Funicle 1 longest, much shorter than pedicel, cup-shaped, the distal funicle joints wider than long; club not enlarged. Clypeus striate.

Habitat: Tasmania (King Island).

Type: No. *I. 1277*, South Australian Museum, Adelaide.

Genus PTEROMALUS Swederus.

It is almost needless to say that the great number of species catalogued under this genus in many instances do not belong here. Walker has described the following species as members of it from Australia. I have seen only one species of the genus which is probably the common *puparum* of Linnæus but it is not recorded as such for the reason that the identity of this species is doubtful and its occurrence in Australia, though probable, cannot be said to be proved. It is even doubtful whether anyone knows what *puparum* is. There are too many members of its genus, tribe and family (not to mention miscogasterids) resembling it not to be fearful that mistaken identifications have been made in the past, especially since its type is unknown and its various descriptions vague and conflicting. Perhaps, fifty years

* Contribution No. 17, Entomological Laboratory, Bureau of Sugar Experiment Stations, Bundaberg, Queensland.

or more ago, nearly every green pteromalid or miscogasterid reared in connection with the chrysalids of butterflies was identified as *puparum*. The present position of this genus is certainly chaotic to say the least. To study the group a systematist would need an open sesame to all museums and libraries. If we could afford to lose the old records concerning members of the genus, it would not be a bad plan for someone to commence a modern study of the group ignoring all former species and fixing the genotype. This is the darker, evil horn of the dilemma but may become necessary.

1. PTEROMALUS BATON Walker. Male, female

Walker, 1839, pp. 32-33.

Habitat: Hobart, Tasmania; Sydney, New South Wales.

Types: Probably in the Natural History Museum, London.

This species seems correctly placed.

2. PTEROMALUS BEBIUS Walker Male, female.

Walker, 1839, pp. 31-32.

Habitat: Sydney, New South Wales.

Types: Probably in the Natural History Museum, London.

3. PTEROMALUS ELPINICES Walker. Female, male.

Walker, 1839, p. 32.

The species seems correctly placed.

Habitat: Hobart, Tasmania.

Types: Probably in the Natural History Museum, London.

4. PTEROMALUS EUCTEMON Walker. Female, male.

Walker, 1839, p. 31.

Habitat: Sydney, New South Wales.

Types: Probably in the Natural History Museum, London.

5. PTEROMALUS EUROPS Walker. Female.

Walker, 1839, pp. 30-31.

Habitat: Sydney, New South Wales.

Type: Probably in the Natural History Museum, London.

6. PTEROMALUS FABIA Walker. Female, male.

Walker, 1839, pp. 33-34.

Habitat: King George's Sound.

Types: Probably in the Natural History Museum, London.

7. PTEROMALUS GORGIAS Walker. Male.

Walker, 1839, p. 34. This species may be a miscogasterid.

Habitat: Sydney, New South Wales.

Type: Probably in the Natural History Museum, London.

8. PTEROMALUS HESUS Walker Female.

Walker, 1839, p. 33. This species seems correctly placed.

Habitat: Hobart, Tasmania.

Type: Probably in the Natural History Museum, London.

9. PTEROMALUS NIPHE Walker. Female.

Walker, 1839, p. 29. This species seems truly placed.

Habitat: Hobart, Tasmania.

Type: Probably in the Natural History Museum, London.

10. PTEROMALUS OCEIA Walker. Female

Walker, 1839, p. 30. Apparently in its right genus.

Habitat: Hobart, Tasmania.

Type: Probably in the Natural History Museum, London.

11. PTEROMALUS PUPARUM (Linnæus) Swederus.

Ashmead, 1900, p. 345. (See preceding remarks.)

Habitat: New South Wales; Europe, North America.

Host: Papilio erectheus.

Type: Unknown.

12. PTEROMALUS THESTOR Walker. Female.

Walker, 1839, pp. 29-30. Seems correctly placed.

Habitat: Hobart, Tasmania.

Type: Probably in the Natural History Museum, London.

13. PTEROMALUS UNCA Walker.

Walker, 1839, p. 28.

Habitat: Hobart, Tasmania.

Type: Probably in the Natural History Museum, London.

14. PTEROMALUS STIRONOTUS Cameron.

Cameron, 1912, pp. 213-214.

Dark coppery green, abdomen dark bronzy-violaceous, antennal scape yellow, flagellum fuscous; legs yellow, darker at base, tarsi paler; wings hyaline, slightly tinged with fuscous in the middle, nervures black. Metanotum with a distinct keel down its centre, the sides distinctly margined, narrowed obliquely towards the apex, depressed inside the lateral keels. Head and thorax not very shining, smooth, front and vertex with some minute punctures. Vertex rather deeply, widely, roundly emarginate. Antennal scape separated from the ocelli by one-third of their length. Ocelli in a curve, the hinder separated from each other by double the distance that they are from the eyes. Palpi yellow. Apex of clypeus slightly, roundly incised.

Thorax finely, closely punctured and sparsely haired; the abdomen much more shining. The under side of the base of the antennal flagellum may be testaceous; the coxæ may be blackish. The stigmal vein is as long as the postmarginal. Thorax roundly narrowed at the base. Scutellum large, longer than wide, the apex broadly rounded. Abdomen shorter than the thorax and wider than it, broadly oval.

Habitat: Hay, New South Wales.

Type: Query.

Host: *Agrotis* species.

Genus NEOCATOLACCUS Ashmead.

1. NEOCATOLACCUS AUSTRALIENSIS new species.

Female:—Length, 2.20 mm.

With all of the characters of the genus but the spiracular sulcus certainly somewhat obscure and the transverse carina on the propodeum does not approach the median carina on each side; also the propodeal spiracles are rather small, elliptical. Antennæ like those figured for *Pseudocatolaccus asphondyliæ* Masi with its original description. Dark metallic green or blue, the coxæ concolorous, the femora fuscous or bluish, rest of legs pallid. Wings hyaline. Scape and pedicel yellow, the funicle and club dusky. Caudal margin of second abdominal segment straight or convexed. The lateral carinæ are short and curved, running toward the meson and forming the transverse carina.

Male:—Antennæ with only two ring-joints, the abdomen shorter and stouter and with much of the centre of proximal half yellowish or brownish. Funicle and club black, the joints of the funicle subquadrate and subequal. Pubescence not adpressed nor conspicuous but short. Vertex not especially thin.

Described from two males, four females captured from a window, November 16, 1911. Also a female reared in December, 1912, from miscellaneous forest galls.

Habitat: Nelson (Cairns), Queensland and Port Darwin, Northern Territory.

Types: No. *1596*, Queensland Museum, two males, two females on a tag, male and female head together on a slide.

Later, one male, four females were received from G. F. Hill, who reared them from the "grain moth," January 1, 1913, at Port Darwin, Northern Territory. On the propodeum there is a round fovea at cephalic margin over halfway to the spiracle from meson.

GENUS TRICHOGLENES Thomson.

1. TRICHOGLENES BRACONOPHAGUS Cameron.

Trichoglenes (?) *braconophagus* Cameron, 1912, pp. 214-215.

"Trichoglenes (?) braconophagus, sp. n.

"Head and thorax dark bronzy-black, closely reticulated; abdomen smooth and shining, violaceous-black; metanotum slightly more finely reticulated than the scutellum, its sides bordered by a distinct, roundly curved furrow; its apex is much more strongly reticulated than the rest; pronotum less strongly than mesonotum; apex of metanotum with a rounded slope. Antennal scape and legs rufo-fulvous. Wings hyaline, nervures rufo-testaceous; stigmal branch longish, curved, as long as postmarginal, dilated at apex; the two forming a longish triangle, longer than it is wide at the apex; apex of wings shortly ciliated. ♂ ♀. Length, 1.5 mm.

"Sydney; 'parasitic on a Braconid parasite'; 21st June."

"From the appearance and structure of the cocoons, I have no doubt that they are those of an *Apanteles*, which, from their spinning their cocoons in company, are preyed upon by various Parasitic Hymenoptera, *Ichneumonidæ* (e.g., *Hemiteles*), *Braconidæ*, *Chalcididæ*, and *Proctotrypidæ*.

"The abdomen in the ♂ is broadly oval, in the ♀ it is longer (but still shorter than the thorax), and much more sharply pointed at the apex; the ovipositor shortly projects. The femora and tibiæ are darker-coloured, more infuscated, in the ♀ than in the ♂. There is a broad, smooth keel on the apex of propleuræ, and a shorter, narrower one on the base of the mesopleuræ. The second abdominal segment is slightly shorter than all the following united, the third is about one-half its length. Flagellum of antennæ densely pilose; antennæ inserted opposite the end of the eyes.

"I am not certain about the generic position of this species, owing to my not being able to make out, with certainty, if the eyes are pilose or bare. If pilose, the species might be referred to *Trichoglenes* Thomas."

TRIBE RAPHITELINI.

GENUS NASONIA Girault and Sanders.

1. NASONIA BREVICORNIS Girault and Sanders.

This species is parasitic upon the house or typhoid fly and may be found in Australia. So far it has not been found out of the United States of America except, perhaps, at Honolulu. *Muscidifurax raptor* should also be looked for here.*

TRIBE ROPTROCERINI.

GENUS ORMYROMORPHA Girault.

Hind tibiæ with the spur very long and stout. Antennæ with three ring-joints, the club solid, eleven joints, the funicle joints wider than long and subpetiolate, shorter than the pedicel. Abdomen subsessile, stout, conic-ovate, somewhat longer than the rest of the body, densely scaly and with scattered thimble punctures. Fore wings banded, the stigmal and postmarginal veins rather long and subequal, each about two thirds the length of the marginal. Propodeum with a median carina two thirds complete from base; no other carinæ, no sulci. Parapsidal furrows incomplete. Both mandibles tridentate. Pubescence of mesonotum somewhat like that of *Catolaccus*.

* Later, a specimen was found from Brisbane.

1. ORMYROMORPHA TRIFASCIATIPENNIS Girault. Female. Genotype.

Dark metallic blue-green, the flagellum brownish. Head and thorax finely shagreened, the incisions of abdominal segments smooth. Fore wings with the middle black stripe longest, the first across from base of marginal vein, the middle from whole of postmarginal vein, the third around the apex; of the two white stripes between the three bands, the first is longest (proximo-distad). Funicle 2 longer than 1.

Habitat: Port Lincoln, South Australia; Sydney, New South Wales.

Type: No. *I. 1264,* South Australian Museum, Adelaide.

2. ORMYROMORPHA TRIFASCIATA Girault. Female.

Same as the type species but larger, the stigmal and postmarginal veins longer; the middle stripe of fore wing is longer, the third stripe shorter, just around apical edge, the white stripes between the three, subequal; scape and pedicel brown. Funicle 1 longer than 2.

Habitat: Hobart, Tasmania.

Type: No. *I. 1265,* South Australian Museum, Adelaide.

Genus PARURIELLA Girault.

Like *Uriella* Ashmead but the mandibles tridentate, the lateral carinæ distinct, also the median, the hind tibial spur long and slender. Antennæ 12-jointed with two ring- and three club joints, the five funicle joints subquadrate. Postmarginal vein longer than the stigmal, the latter less than half the length of the marginal. Scutellum simple. Parapsidal furrows complete. Abdomen only slightly longer than the thorax, depressed.

1. PARURIELLA AUSTRALIENSIS Girault. Female. Genotype.

Bright aeneous green, the wings hyaline; knees, tips of tibiæ and tarsi yellow-brown; venation dark brown. Antennæ black, the pedicel only slightly longer than funicle 1. Densely punctate including propodeum; abdomen scaly. Cephalic tibiæ sometimes paler.

Habitat: Mittagong, New South Wales; Brisbane, Queensland.

Type: No. *I. 1346,* South Australian Museum, Adelaide.

A female of this species was captured by Mr. H. Hacker at Brisbane on flowers of *Bæckea,* April 22, 1913. It is in the Queensland Museum on a tag (a slide with the head and cephalic and hind legs).

Genus URIELLOIDES Girault.

Like *Uriella* Ashmead but the antennæ bear three ring-joints, the mandibles 3- and 4-dentate, the propodeum tricarinate, the lateral carinæ grooved interiorly; spiracle of propodeum small, oval. Parapsidal furrows incomplete. Somewhat like *Neocatolaccus* Ashmead. Antennæ inserted close together. Club 3-jointed.

1. URIELLOIDES FULVIPES Girault. Female. Genotype.

Dark metallic blue-green, the legs (except coxæ) lemon yellow, the wings hyaline; scape pallid, suffused with dusky, the flagellum reddish brown, subclavate, the first three

funicle joints subquadrate and subequal, distinctly shorter than the pedicel, the others widening and slightly shortening. Punctate, the propodeum practically smooth. Scape long, cylindrical.

Habitat: Cairns, Queensland.

Type: No. *I. 1345*, South Australian Museum, Adelaide.

ROPTROCEROPSEUS new genus.

Female:—Head normal, the antennæ inserted below the middle of the face, about on a line with the ventral ends of the eyes, 12-jointed with two ring-joints, the club 3-jointed. Both mandibles 4-dentate. Parapsidal furrows complete. Scutellum with a transverse suture before apex. Propodeum short, polished, with a distinct median carina, the cephalic and posterior margins foveate, the lateral carinæ absent. Second abdominal segment occupying somewhat over a third of the surface, the others much shorter. Postmarginal vein a little longer than the stigmal, the marginal still longer but moderately short. Somewhat like *Paruriella* Girault but the mandibles with more teeth, the scutellum not simple, the propodeum without lateral carinæ, the hind tibial spur normal.

Male:—Not known.

Type: The following species.

1. ROPTROCEROPSEUS ALBICORNIS new species.*

Female:—Length, 1.50 mm.

Dark metallic blue and punctate, the wings hyaline, the propodeum and abdomen blue-green, the antennæ and legs (excepting the concolorous coxæ) yellowish white. First funicle joint longest, subequal to the pedicel, the distal one a little wider than long, shortest, the club somewhat wider than the funicle, without a nipple or terminal seta; scape long and slender.

Described from one female captured by sweeping near and along a forest streamlet clothed with more or less jungle growth, August 17, 1913.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1957*, Queensland Museum, the above specimen on a tag, the head and hind legs on a slide.

A second female was captured in the forest at Nelson, September 6, 1913.

Tribe MERISINI.

Genus AMICROMELUS Girault.

This genus was referred to the Pteromalidæ by mistake. It belongs to the Miscogasteridæ, tribe Trydymini, near *Metastenus* Walker. The type has been re-examined and additional specimens seen.

Tribe BRACHYSCELIDIPHAGINI.

Genus CŒLOCYBA Ashmead.

Nonmetallic; mandibles dentate; antennæ short, strongly clavate, inserted near the mouth border, the pedicel large; stigmal vein as long as the marginal, clavate. Pronotum short. Parapsidal furrows well defined. Axillæ widely separated. Abdomen sessile, conic ovate, depressed. Hind coxæ large, compressed.

* This and all descriptions made with ⅔-inch objective, 1-inch optic, Bausch and Lomb.

1. CŒLOCYBA NIGRICINCTA Ashmead. Female. Genotype.

Brownish yellow; shagreened; ocelli in a triangle, black; occiput, cephalic face of pronotum, parapsidal furrows, the sutures of scutellum, metathorax and broad bands at base of all dorsal segments of abdomen, black; wings hyaline, the venation pale yellowish. All joints of funicle very short, transverse-linear. Propodeum short smooth. Postmarginal vein very long, longer than the stigmal, the marginal shorter than the stigmal. Abdomen a little longer than the head and thorax combined.

Habitat: Sydney, New South Wales. Forest; associated with an agromyzid gall on *Eucalyptus corymbosa*.

Type: Cat. No. *4898*, United States National Museum, Washington, D.C., U.S.A.

2. CŒLOCYBA ACINCTA new species

Female:—Length, 1.45 mm.

Honey yellow, the wings hyaline, the legs and antennæ concolorous; all of centre of axillæ, two stripes down scutum, one on each side of meson, cephalic ends of parapsides and portions of scutellum obscurely (meson broadly and a stripe down each side of it), faintly reddish brown. Tip of valves of ovipositor black. Both mandibles tridentate. Hind tibial spur stout but not especially long, the front and hind femora compressed. Thorax finely densely scaly, the scutum with scattered short, black pubescence; parapsidal furrows delicate but distinct and complete. Scape compressed, the enlarged, ovate club obliquely truncate from one side. Antennæ 13-jointed, the funicle joints all transverse-linear, widening distad, the club *apparently* solid (here counted as of three joints; first two or three funicle joints like ring-joints). Scutellum flattened.

Male:—Not known.

Described from one female captured by sweeping the foliage of shrubs (mostly lantana) in an open field near town, October 21, 1911.

Habitat: Mackay, Queensland.

Type: No. *Hy 1958*, Queensland Museum, the above specimen on a tag (the head accidentally destroyed following examination).

This genus closely resembles some of the Taneostigmini of the Encyrtidæ, more especially *Taneostigma* Howard but the divided mesopleurum at once points to its proper family where I think Ashmead has correctly placed it. The parapsidal furrows are quite normal for its family. It also closely resembles *Cœlocybomyia* Girault MS. of the Cleonyminæ whose type species is also colored much like Ashmead's *nigricincta*.

Genus TEROBIELLA Ashmead.

Mandibles acute, edentate; nonmetallic; abdomen short, globose, depressed above; marginal vein not or scarcely longer than the stigmal vein; metathorax very short. Stigmal vein ending in a small knob; abdomen with the first dorsal segment occupying half or more of the surface. Postmarginal vein a half longer than the marginal, the latter slightly shorter than the stigmal. Antennæ inserted near the middle of the face; funicle joints wider than long. Parapsidal furrows complete. Propodeum abrupt, smooth mesad, punctate lateral aspect, the spiracle small, rounded. Abdomen broadly oval.

1. TEROBIELLA FLAVIFRONS Ashmead. Female. Genotype.

Mostly black, polished, impunctate; vertex and temples black; face ventrad of cephalic ocellus, cheeks, mandibles, palpi, antennæ and tegulæ brownish yellow; thorax and abdomen entirely black. Legs yellow, the coxæ fuscous. Wings hyaline. Scape short, subcompressed; pedicel subglobose; cephalolateral angles of funicle joints acute.

Habitat: Sydney, New South Wales. Gall on *Eucalyptus.*

Type: Cat. No. *4897*, United States National Museum, Washington, D.C., U.S.A.

GENUS BRACHYSCELIDIPHAGA Ashmead.

Differs from *Terobiella* Ashmead in having the stigmal knob moderately large, the dorsal segments of the abdomen short. Marginal and postmarginal veins about equal, a third of the length of the submarginal, the stigmal vein a little shorter than the marginal. Flagellum clavate, all funicle joints wider than long.

1. BRACHYSCELIDIPHAGA FLAVA Ashmead. Female. Genotype.

Yellow, smooth or nearly, the wings hyaline; occiput, pronotum on cephalic face, a spot on scutum, one on inner angle of parapside, a large spot on middle of scutellum, sutures surrounding the latter and the propodeum brown-black. Abdomen dusky or brownish except second segment. Pedicel almost twice longer than thick at apex, much longer and stouter than first three funicle joints combined; funicle 1 very small, as long as thick, joint 2 also small, a little wider than long, the following gradually widening and lengthening.

Habitat: Sydney, New South Wales. Associated with *Brachyscelis pileata.*

Type: Cat. No. *4896*, United States National Museum, Washington, D.C., U.S.A.

GENUS ISOPLATOIDES Girault.

Antennæ inserted slightly above the ventral ends of the eyes, 13-jointed, with two ring-joints, the club 3-jointed; funicle 2 longest. One mandible tridentate. Metallic. Marginal, postmarginal and stigmal veins long, the postmarginal three fourths the length of the marginal, a fourth longer than the stigmal which is slender. Propodeum short, the lateral carinæ present. Wings fasciate. Parapsidal furrows shallow. Abdomen conic-ovate, flat dorsad. Propodeal spiracle round. Scutellum simple.

1. ISOPLATOIDES BIFASCIATUS Girault. Female. Genotype.

Dark metallic green, the scape and tarsi fulvous, rest of legs and antennæ black or nearly. Knees and tips of tibiæ lighter; first fuscous stripe of fore wing from base of marginal vein, the second from the postmarginal vein, the first lengthening caudad; the second stripe extends nearly to apex. Head and whole thorax densely punctate. Funicles 3-6 quadrate, 6 slightly wider than long; proximal club joint equal to half of that region.

Habitat: Port Lincoln, South Australia.

Type: No. *I. 1267*, South Australian Museum, Adelaide.

2. ISOPLATOIDES BIPUSTULATUS Girault. Female.

The same as the type species but the legs reddish brown, the antennæ suffused with brown; median carina of propodeum distinct, complete, also the lateral carinæ; fore wings

with two fuscous dots, the first reniform and from the apex of the submarginal vein, the second rounded and much smaller, in the centre of the blade, caudo-proximad of the knob of the stigmal vein.

Habitat: Mount Wellington, Tasmania.

Type: No. *I. 1268*, South Australian Museum, Adelaide.

ISOPLATA new genus.

This genus was proposed by Arnold Foerster in 1856 for *Isoplata geniculata* Foerster a *nomen nudum* because of nondescription. I adopt the name for both the genus and species following. The species fits the Foersterian generic description as given by Ashmead, 1904. The antennæ are inserted near the middle of the face, 13-jointed; scutellum with a delicate cross-furrow. Stigmal vein about half the length of the marginal, the postmarginal somewhat longer than the stigmal. Both mandibles 4-dentate.

The following type species.

1. ISOPLATA GENICULATA new species.

Female:—Length, 1.45 mm.

Metallic brassy grass green, the wings hyaline, the legs straw yellow except the hind coxa, the antennæ yellow, the club darker, the first funicle joint narrower than the others, all of them slightly longer than wide and subequal to the short pedicel. Parapsidal furrows deep. Whole thorax polygonally reticulate, the cross-suture of scutellum emarginate at the meson, the propodeum without carinæ. Second abdominal segment somewhat the longest, the abdomen conic-ovate, short.

Male:—Not known.

Described from four females captured by sweeping *Leptospermum*, April 16, 1913 (H. Hacker).

Habitat: Brisbane, Queensland.

Type: No. *Hy 1959*, Queensland Museum, two specimens on a tag, three heads on a slide with a hind leg.

CŒLOCYBOIDES new genus.

Female:—Differing from *Cœlocyba* Ashmead in having the hind tibial spur very stout, curved and long, half the length of the hind tarsi, in having a transverse suture across the scutellum, in bearing antennæ which are only 11-jointed, in having the very long stigmal and postmarginal veins subequal and distinctly shorter than the marginal, the fore wings banded and with a dense clump of stiff black bristles upon the bend of the submarginal vein. First abdominal segment no longer than the second, both together occupying about a fourth of the surface. Mandibles tridentate. Club solid.

Male:—Not known.

A genus resembling *Erotolepsiella* Girault of the Miscogasteridæ.

Type: The following species.

1. CŒLOCYBOIDES PAX new species.

Female:—Length, 2.00 mm.

Ochreous or reddish yellow, the first two segments of the abdomen pale yellowish, rest of abdomen dark brown; fore wings with a narrow brownish band across from the clump of black setæ and another large one, oval in shape, across from apex of the marginal vein and all of stigmal. Thorax densely shagreened, the propodeum rather long and with a neck, rugulose. Coxæ and tarsi concolorous, rest of legs brownish, the hind femora and tibiæ blackish, the latter white at tip. Antennæ dusky yellowish, the first two funicle joints small and subequal like ring-joints, the others (there are eight) widening, all much wider than long; club short and stout, more or less obliquely truncate at apex.

Male:—Unknown.

Described from one female captured by sweeping in forest, December 2, 1911.

Habitat: Australia—Nelson (Cairns), North Queensland.

Type: No. *Hy 1960*, Queensland Museum, the above specimen on a tag, the hind tibiæ, a fore wing and the head on a slide.

Genus CŒLOCYBELLA Girault.

Noticing a discrepancy between the position of this genus and its original description, I have re-examined the type, finding the mesepimeron large, the hind tibial spurs double, short and stout, the front femora swollen but simple, the hind femora less swollen and simple; also there is a sulcus on the propodeum between the spiracle and the meson but not a spiracular sulcus. It belongs to the Perilampidæ, allied with the tropical gall-making genera which are anomalous.

Subfamily EUNOTINÆ.

Genus AMUSCIDEA Girault.

Differing from *Muscidea* Motschulsky in bearing 11-jointed antennæ with one very short ring-joint, the club 3-jointed. Mandibles tridentate. Parapsidal furrows complete, the scutum with thimble punctures; scutellum with a transverse suture before tip; propodeum very short, apparently with a weak pair of median carinæ, no others. Abdomen ovate. Marginal vein short, about twice the length of the moderate stigmal which is somewhat longer than the postmarginal. Segment 2 occupying a third of the abdomen. Hind tibial spur moderately long.

1. AMUSCIDEA NIGRIPES Girault. Female. Genotype.

Dark aeneous green, the wings hyaline; proximal four tarsal joints yellowish. Antennæ nearly black. Tip of scutellum bluish, the thorax polygonally scaly. Funicle joints all longer than wide, 1 very slightly shorter than the short pedicel. Scape longer than the club.

Habitat: Mount Tambourine, Queensland. Jungle?

Type: No. *I. 1347*, South Australian Museum, Adelaide.

Subfamily SPHEGIGASTERINÆ.

Tribe ASAPHINI.

Genus TOMOCERA Howard.

1. TOMOCERA CALIFORNICA Howard. Female, male. Genotype.

Howard, 1881, p. 368. Ashmead, 1900, p. 345.

Ashmead records *Moranila testaceipes* Cameron described from Oahu, Hawaii as a synonym of this species; also that there is a specimen of this species in the collections of the United States National Museum, Washington, D.C., from Australia. The species is an associate of commercial crops.

Habitat: North America (California). Sandwich Islands. Australia.

Host: Lecanium oleæ

Type: Probably in the United States National Museum, Washington, D.C., U.S.A.

Genus OPHELOSIA Riley.

Riley, 1890, p. 249.

"Closely resembles in habitus *Dilophogaster* Howard (see Ann. Rept. Dept. Agr., 1880, p. 368, where it is described as *Tomocera*, subsequently changed to *Dilophogaster* on account of the preoccupation of *Tomocera* in *Thysanura*), with which it agrees in many characters, but from which it is sharply defined. The antennal peculiarities are identical in the two forms, viz.: The simple, clavate, 10-jointed female antennæ, and the compressed, serrate, hairy, 9-jointed male form. The wings in *Ophelosia* differ markedly, as follows: The sub-marginal vein is not curved downward; the marginal is more than twice as long as the stigmal; just below the bend of the sub-marginal in the female is a broad patch of very stout bristles arising from the wing surface. The petiole of the abdomen is nearly as long as the width of the metascutum; the fimbriæ of the callus are very dense, but short. The tufts of hair at base of abdomen are sparse. The hind tibiæ are furnished at tip with a long, slender, slightly-curved spine, nearly as long as the first tarsal joint, while in *Dilophogaster* it is entirely unarmed."

1. OPHELOSIA CRAWFORDI Riley.

"*Female.*—Length, 2 mm.; expanse, 4 mm. General color honey-yellow, somewhat darker dorsally than ventrally. Head: face and vertex strongly transverse-rugose; ocelli concolorous; eyes darker; antennæ with club more dusky and with joints 2-6 of flagellum paler than the rest. Thorax: pronotum and mesonotum plainly shagreened, with sparse, appressed concolorous pile; mesoscutellum faintly striate; lateral parts of mesoscutum strongly rugose, the centre faintly so; the four mesoscutellar piliferous tubercles as also the hairs, black, a small spot behind each tegula and the lateral parts of the mesoscutum black or blackish; fimbria of metascutum white; wings with a narrow curved transverse dusky band reaching from the bend of the submarginal vein to hind border of wing including the patch of wing bristles; also with a large nearly circular dusky shade below stigma and reaching nearly across wing; legs uniformly honey-yellow with the coxæ sometimes brownish above. Abdomen with basal joint dark brown, and more or less brown at sides and near tip.

"*Male.*—Slightly smaller; sculpture identical throughout. Pile very inconspicuous, dark. General color black, shining; all legs honey-yellow; the upper sides of the hind femora and tibiæ somewhat darkened; hind coxæ black; front and middle coxæ honey-yellow at tip; antennæ with the scape honey-yellow, and the funicle brownish; wings perfectly hyaline.

"Described from four female and two male specimens reared by F. S. Crawford, at Adelaide, from specimens of *Icerya purchasi* received from S. Australia, 50 miles south of Adelaide."—Riley, *ib.*, pp. 249-250.

The figure given with the original description of this insect shows a solid club in the female and thus I am inclined to think the following species are congeneric with it though both Riley and Ashmead state the antennæ to be 10-jointed which would make the club 3-jointed. In the original description the propodeum is mistaken for the petiole. Ashmead, 1900, p. 345, records it from Sydney. The types are probably in Washington.

2. OPHELOSIA SAINTPIERREI new species.

Female:—Length, 1.60 mm.

Like *Asaphomorphella* Girault but the antennæ with a distinct ring-joint, the first funicle joint a little longer than wide, the second quadrate, the last or next two a little wider than long; also the propodeum is large, long at the meson, a little longer than wide and produced into a neck; ovipositor not exserted. Hind femora subsimple, the front femora subcompressed. Mandibles tridentate. Propodeum rugulose. Ochreous, the abdomen brownish, the legs concolorous, the hind tibia more or less dusky; antennæ dusky pallid, the solid club dusky. Fore wing with a clump of dark hairs at the break of the submarginal vein and a narrow transverse fuscous stripe which, however, does not reach the caudal margin; a broad fuscous stripe across from the apical third of the marginal and all of the stigmal veins. Thorax scaly, with distinct aeneous tinges on scutum and scutellum.

Male:—Not known.

Described from a single female captured by sweeping in forest, February 16, 1911 (A. M. Lea and A.A.G.).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1961*, Queensland Museum, the above specimen on a tag, the head and legs on a silde.

3. OPHELOSIA PINGUIS new species.

Female:—Length, 1.50 mm.

Like *Asaphomorphella rousseaui* Girault but the ovipositor not exserted, the propodeum apparently the same but subconical and rugose with interlacing carinæ, the antennæ with a true ring-joint. First funicle joint longer than wide. Postmarginal vein a little longer than the stigmal. First femora swollen. Reddish brown, the distal parts of scutum and scutellum washed with metallic greenish. Cross-stripe from bend of submarginal vein not complete and there is a rather broad brown stripe across the wing from end of marginal and all of stigmal veins. Thorax finely scaly. Distal half of abdomen fuscous. Tarsi whitish, the hind tibia exteriorly fuscous. Antennæ yellow-brown, the club fuscous, the three distal funicle joints subquadrate.

Male:—Not known.

Described from one female captured from a window, November, 1912.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1962*, Queensland Museum, the above specimen on a tag, the head, fore and hind legs on a slide.

The antennæ of *saintpierrei* and *pinguis* are identical; *pinguis* is much darker in general color and the two species seem to differ in the details of the sculpturing on the propodeum but which is not describable. Upon comparison I could not detect other differences. Both species resemble the figure given of the genotype by Riley.

Genus ASAPHOMORPHELLA Girault.

Antennæ 8-jointed, the club solid, no ring-joint but the first funicle joint transverse, only half the length of the second; hind tibial spur very long and stout; mandibles tridentate; propodeum very short, transverse, but medially broadly produced beyond the insertion of the hind coxæ as in *Lelaps*; abdomen short, stout, its petiole short and stout, the second segment occupying three fourths of the surface, the ovipositor exserted for over half the length of the abdomen. Hind femur swollen. Wings fasciate, the marginal vein a little over twice the length of the stigmal which is a third longer than the postmarginal. No carinæ on metathorax. Funicle joints wider than long, the club large, ovate.

1. ASAPHOMORPHELLA ROUSSEAUI Girault. Female. Genotype.

Honey yellow, the distal two thirds of abdomen and hind tibiæ fuscous, also the flagellum, the club black. Fore wing with a large subspherical smoky area across it from the stigmal vein and a transverse smoky stripe at the bend of the submarginal vein where there is also a dense clump of black bristles.

Habitat: Port Lincoln, South Australia.

Type: No. *I. 1342*, South Australian Museum, Adelaide.

ASAPHOIDEUS new genus.

Female:—Agreeing with *Asaphes* Walker but the antennæ only 11-jointed with one ring-joint, the club 3-jointed, the funicle joints transverse, the flagellum clavate. Mandibles strongly tridentate. Marginal vein twice the length of the stigmal, the latter a third shorter than the postmarginal. Pronotum large, as long as the scutum, and quite as in the Eurytomidæ. Scutellum with a foveate cross-furrow at proximal two thirds, beyond that polished. Propodeum with median and lateral carinæ, the former forking at apex and joining the distal ends of the lateral carinæ. Petiole long, the abdomen conic-ovate, the fifth segment occupying over half the surface. Thorax finely lined. Hind tibial spur normal. Antennæ inserted at the mouth border.

Male:—Not known.

This genus resembles a nonpunctate genus of the Eurytomini but I think I have correctly allied it with the Asaphine Sphegigasterini.

Type: The following species.

1. ASAPHOIDEUS NIGER new species.

Female:—Length, 1.50 mm.

Black, the wings hyaline; abdomen polished. Knees, tibiæ and tarsi yellowish brown. Antennæ yellow.

Described from one female labelled "No. 12 Stapleton, N.T. 1.5.13. G. F. Hill."

Habitat: Stapleton, Northern Territory.

Type: No. *Hy 1963*, Queensland Museum, the above specimen on a tag, the head and a hind leg on a slide.

Tribe SPHEGIGASTERINI.

Genus SYNTOMOPUS Walker.

1. SYNTOMOPUS AUSTRALIENSIS Girault. Female.

Very dark metallic green, the legs except the coxæ and antennæ pale straw yellow, the wings hyaline; scutellum without a cross-furrow. Venation very pale, the long postmarginal vein nearly equal to the marginal, the stigmal long but shorter than the postmarginal. Both mandibles 4-dentate, the two inner teeth equal. Most of the funicle joints longer than wide. Pronotum long but not especially so. Antennæ 13-jointed with two ring-joints. Vertex not narrow.

Habitat: Kuranda and Nelson, Queensland. Jungle.

Type: No. *Hy 1964*, Queensland Museum.

Genus PTEROSEMELLA Girault.

Differing from *Pterosema* Foerster in bearing three ring-joints in the antennæ. Mandibles 4-dentate. Pronotum transverse. Scutellum simple. Propodeum tricarinate, reticulated. Petiole of abdomen not quite as long as the hind coxæ, the second segment very long, occupying three fourths of the surface, its distal margin straight; segment 3 much shorter. Postmarginal vein three fourths the length of the marginal, the stigmal two thirds the length of the long postmarginal. Clypeus bidentate.

1. PTEROSEMELLA VIRIDIS Girault. Male. Genotype.

Bright metallic green, the abdomen black suffused with brownish, the legs straw yellow, the coxæ more or less metallic greenish laterad. Polygonally reticulate-punctate, the abdomen smooth and shining, finely reticulated distad. Wings hyaline.

Habitat: Queensland.

Types: No. *Hy 1965*, Queensland Museum.

Host: Eggs of *Antherea simplex.*

Genus SPHEGIGASTEROIDES Girault.

Differing from *Pterosema* Foerster in having but one ring-joint, the mandibles only bidentate, the second tooth broad, the hind tibiæ compressed toward tip, the body nonmetallic and particolored, the fore wings colored. Petiole of abdomen short and stout, the second segment not occupying more than a third of the surface, its caudal margin incised at meson. Propodeum rugulose, the spiracle oval, tricarinate, the median carina also with two irregular carinæ on each side of it. Stigmal and postmarginal veins subequal, about half the length of the marginal. Funicle 1 subequal to the pedicel.

1. SPHEGIGASTEROIDES RUFINOTUM Girault. Female. Genotype.

Shining black, the pro- and mesothorax and the head rufous, also the scape. Fore wings with a large smoky blotch under the marginal vein which extends more than half way across the wing and conically distad beyond the stigmal vein. Head and thorax finely punctate.

Habitat: Sydney, New South Wales.

Type: No. *I. 1250*, South Australian Museum, Adelaide.

Genus PARURIOS Girault.

Wings very small, with a very long marginal vein, the stigmal and postmarginal veins short, subequal, the hind wings perfect. Parapsidal furrows nearly meeting caudad. Propodeum with a median carina whose middle is crossed by a semicircular carina and whose apex is forked. Second segment of abdomen over a third of the length of that region. Antennæ 12-jointed, no ring-joint, the first funicle joint longest but not as long as the pedicel. Scutum conical, the scutellum with a cross-line of foveæ at distal third. No true lateral carina on propodeum. Differing from *Urios* Girault from North America in lacking a ring-joint in the antennæ, the median groove and the sulci of propodeum and in the shape of the mesothoracic sclerites, the lower antennal insertion (here at the ventral ends of the eyes), the infuscated wings and ringed antennæ and the slight and short parapsidal furrows. With a distinct lelapine habitus. Mandibles tridentate.

1. PARURIOS AUSTRALIANA Girault. Female.

Shining reddish brown, the legs concolorous, also the scape and pedicel; first two funicle joints and the club whitish, the rest of the funicle nearly black. Abdomen with a broad darker stripe across base, a narrower one across the middle and with the conical distal third of the same dark color but dorsad also washed with more or less metallic green. A broad band of opaque black across the mesonotum at the base of the fore wings. Disc of fore wings with a large fuscous cloud from distal third of the marginal vein, the whole blade light brown, densely pubescent distad and nearly truncate at apex. Petiole of abdomen longitudinally striate. Thorax alutaceous, a few punctures in the cross-band of black and the scattered, long, black bristles.

Habitat: Ourimbah, New South Wales.

Type: No. *I. 1266*, South Australian Museum, Adelaide.

Genus PTEROSEMOIDEA Girault.

Like *Pterosema* Foerster but the antennæ with three ring-joints; propodeum long, with lateral carinæ and an obscure, obtuse median carina at base only, the neck distinct. Postmarginal vein long, nearly as long as the marginal which is a third longer than the well-developed stigmal. Abdominal petiole short. At least one mandible 4-dentate. Differs from *Pterosemella* in lacking the complete median carina on the propodeum. Segment 3 of abdomen only half the length of the second, the abdomen acutely convexed beneath at middle.

1. PTEROSEMOIDEA FLAVIPES Girault. Female. Genotype.

Metallic grass green, the abdomen darker; punctate, including the propodeum; scape and legs except tarsi brownish yellow; rest of antennæ dusky yellowish. Wings hyaline. Scape long and slender; pedicel somewhat shorter than the first funicle joint which is subequal to the next two joints, the distal joint only slightly wider than long. Club somewhat wider than the funicle, 3-jointed, ovate.

Habitat: Port Lincoln, South Australia.

Type: No. *I. 1339*, South Australian Museum, Adelaide.

Genus APTEROSEMOIDEA Girault.

Differs from *Pterosemoidea* Girault in having the abdomen flat, not convexed beneath nor sunken above, the second and third segments long and subequal, together occupying over half of the surface; neck of propodeum much less distinct. Petiole nearly as long as the hind coxæ.

1. APTEROSEMOIDEA NIGRIVIRIDIS Girault. Female. Genotype.

Nearly black, the abdomen dark metallic bluish; coxæ and most of femora concolorous, the rest of the legs yellowish; wings hyaline; scape dark fuscous, the flagellum black. Mandibles 3- and 4-dentate. Propodeum with very obscure lateral carinæ but no median, long, punctate; abdomen depressed, the segments following 2 and 3 a third shorter and subequal. Head and thorax coarsely punctate, the abdomen smooth. Propodeal spiracle minute, round. Funicle joints all somewhat longer than wide.

Habitat: Mittagong, New South Wales.

Type: No. *I. 1340*, South Australian Museum, Adelaide.

GENUS EURYDINOTELLA Girault.

Like *Eurydinota* Foerster but the antennæ with three ring-joints, the joints of the funicle all longer than wide, the second longest, the first somewhat shorter than the pedicel. Propodeum only with lateral carinæ, with a distinct neck. Mandibles 3- and 4-dentate. Segment 2 of abdomen occupying over a third of the surface, subequal to the long segment 3. Postmarginal vein slightly longer than the stigmal. Parapsidal furrows nearly half complete. Petiole of abdomen nearly as long as the hind coxa.

1. EURYDINOTELLA PRIMA Girault. Female. Genotype.

Dark aeneous green, the wings hyaline, all of each leg reddish brown, the tarsi pallid; abdomen darker, smooth. Head and all of thorax densely punctate. Scape and pedicel fuscous, the former paler proximad, the flagellum black. Joints 2-4 of funicle subequal, longest, the first and last joints subequal. Distal club joint terminating in a small nipple. Ring-joints increasing in size distad.

Habitat: Murray Bridge, South Australia.

Type: No. *I. 1343*, South Australian Museum, Adelaide.

2. EURYDINOTELLA VIRIDICOXA Girault. Female.

Differs from *prima* in bearing concolorous coxæ, the femora fuscous proximad and the pedicel is colored like the funicle. Joint 4 of funicle is distinctly shorter than joint 2. Pronotum impunctate, very minutely scaly.

Habitat: Capeville (Pentland), Queensland. Forest.

Type: No. *Hy 1966*, Queensland Museum.

GENUS APTEROSEMOIDELLA Girault.

This genus is allied with *Pterosemoidea* and *Apterosemoidea* but differs in abdominal, mandibular and wing characters. Both mandibles are 4-dentate, the stigmal vein is long, the fore wing infuscated, the abdomen is slightly convexed beneath, its second and third segments together not occupying over a third of the surface.

1. APTEROSEMOIDELLA BIOCULATA Girault.

Dark aeneous green, the abdomen darker; legs concolorous, the tibiæ brown, the tarsi paler. Antennæ brownish, the third ring-joint largest, the first funicle joint slightly longer than the pedicel. Stigmal vein long and slender, but not as long as the postmarginal, the fore

wing with two distinct fuscous spots, the distal one round and just under the knob of the stigmal vein, the proximal one larger, crescentic and originating from the base of the marginal vein. Abdominal petiole very short, the second segment only slightly longer than the third, longest. Median carina of propodeum apparently absent.

Habitat: Port Lincoln, South Australia.

Type: No. *I. 1341*, South Australian Museum, Adelaide.

Genus EURYDINOTOMORPHA Girault.

Differs from *Eurydinotella* Girault in having the abdomen long, pointed conic-ovate, the second segment occupying about a fifth (or slightly more) of the surface, the abdomen longer than the head and thorax united. Postmarginal vein very long, over twice the length of the stigmal. Propodeum with abbreviated median and lateral carinæ. Parapsidal furrows about half complete. Segment 2 of abdomen about four times the length of the third; segment 4 nearly twice the length of 3; segment 7 subequal to 2. Petiole short. With the habitus of *Sympiesus* of the Eulophidæ.

1. EURYDINOTOMORPHA PAX Girault. Female. Genotype.

Metallic shining blue, the abdomen aeneous green, the wings hyaline, the venation, tarsi, tips of tibiæ and scape pale yellow, the femora and tibiæ reddish brown, the coxæ concolorous. Pedicel and first ring-joint more or less pallid. First club joint forming over half the club, subequal to funicle 3 which is a fourth longer than the pedicel. Pubescence on scutum somewhat as in *Catolaccus*. Reticulated, the propodeum more densely so, the abdomen finely so. Funicle and club black, funicle 1 longest. Abdomen above purple.

Habitat: Babinda, Queensland. Jungle.

Type: No. *Hy 1967*, Queensland Museum.

2. EURYDINOTOMORPHA FUSCIVENTRIS new species

Agreeing with the type of the genus in all structures but the short median carina on the propodeum is absent and the marginal and postmarginal veins are shorter, the latter very long but not extending nearly to apex. Dark aeneous green, the abdomen chestnut brown, the legs also brown, the wings hyaline; propodeum conical, reticulate-punctate like the rest of the thorax; abbreviated lateral carinæ present; abdomen slender, cylindrical, the second segment glabrous. Thorax with pubescence somewhat as in *Catolaccus*; segments of abdomen beyond the second, very finely transversely lineolated. Coxæ slightly washed with metallic. Antennæ 13-jointed (three ring-joints, the five funicle joints all longer than wide); distal club joint distinctly shorter than the proximal one. Ring-joints increasing in size distad. Mandibles 3- and 4-dentate.

Male:—Not known.

Described from one female captured by sweeping the foliage of lantana and other plants in a field near the town, October 21, 1911.

Habitat: Mackay, Queensland.

Type: No. *Hy 1968*, Queensland Museum, the above specimen on a tag, the head and hind legs on a slide.

GENUS MERISMOMORPHA Girault.

Like *Acroclisis* Foerster but the antennæ with three ring-joints, segment 2 of the abdomen occupying only a fourth of the surface, a fourth longer than segment 3 and somewhat shorter than segment 4 which is longest; segments 2 and 3 notched at the meson caudad, and occupying half of the surface. Propodeum along the meson with a rounded or obtuse ridge which terminates at the apex in a moundlike elevation; lateral carinæ and a distinct, complete spiracular sulcus are present. Petiole of abdomen slightly longer than the hind coxa. Mandibles 3- and 4-dentate. Otherwise like *Pterosemoidea*, especially in venation.

1. MERISMOMORPHA ACUTIVENTRIS Girault. Female. Genotype.

Dark metallic green, the legs except coxæ, light yellow-brown, the wings hyaline; scape, pedicel and first two ring-joints concolorous with the legs, the rest of the antennæ dusky black. Head and thorax with a dense scaly sculpture, the abdomen smooth (at least segments 2-4, or nearly two thirds). Third ring-joint twice the length of the others, the pedicel a little longer than any of the funicle joints which are subquadrate but the last (fifth) wider than long. Ventral margin of clypeus with a tongue-like projection at meson.

Habitat: Kuranda, Queensland. Jungle.

Type: No. *Hy 1969*, Queensland Museum.

2. MERISMOMORPHA FULVICOXA new species.

Female:—Length, 1.65 mm.

Like the type species but the coxæ also concolorous with the rest of the legs, the pedicel dusky, the somewhat longer (distinctly longer than the hind coxa) abdominal petiole bright yellow-brown like the legs and the last two funicle joints wider than long (at least one mandible 4-dentate). Median ridge of propodeum obscure.

Described from one specimen captured August 1, 1913, by sweeping jungle along a forest streamlet.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1970*, Queensland Museum, the above specimen on a tag, the head and hind legs on a slide.

3. MERISMOMORPHA NIGRA new species.

Female:—Length, 1.35 mm.

Black, the abdomen dark metallic green including the petiole which is yellowish toward tip; mandibles 3-dentate; coxæ concolorous, the femora fuscous, rest of legs yellowish brown and also the scape; antennæ black, the funicle joints subquadrate, the first ones a little longer, all shorter than the pedicel. Body densely punctate. Petiole longer than the hind coxæ, slender. Postmarginal vein much longer than the stigmal.

Male:—Not known.

Described from one female captured by sweeping in forest, April 20, 1913.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1971*, Queensland Museum, the above specimen on a tag.

W

Genus POLYCYSTOIDES Girault.

Differing from *Polycystus* Westwood in having 11-jointed antennæ, the club solid; moreover the petiole of the abdomen is short and stout, the median carina of propodeum is intersected by a distinct transverse carina from side to side and the cephalic margin of the propodeum is carinated, the propodeum reticulated, with a distinct neck and spiracular sulci; between the median carina and the spiracle along the cephalic margin is a large fovea. Mandibles strongly tridentate. Transverse suture of scutellum faint. Segment 2 of abdomen occupying about a fourth of the surface, the abdomen stout, conic-ovate, somewhat longer than the thorax, the caudal margin of the segments straight. Thorax inflexed at the scutellum. Head very large, wider than long. Postmarginal vein longer than the stigmal. Distal margin of scutellum carinated. Antennæ with two ring-joints. Parapsidal furrows incomplete, the axillæ widely separated.

1. POLYCYSTOIDES TENNYSONI Girault. Female. Genotype.

Dark blue, opaque, and punctate, the wings hyaline, the abdomen shining, aeneous green; legs and antennæ yellowish brown but the coxæ dark blue and the club (which is enlarged) and distal funicle joint is black. Ring-joints stout; first three funicle joints distinctly longer than wide, 2 and 3 longest, subequal, each a little shorter than the pedicel; joint 4 only a little longer than wide, joints 5 and 6 shortening, 6 distinctly much wider than long. Club about half the length of the funicle. Scape long and cylindrical. Tarsi pale.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1972*, Queensland Museum.

Genus PSEUDOSPHEGIGASTERUS Girault.

Antennæ 11-jointed with three ring-joints, the club solid and terminating in a short nipple. Propodeum noncarinate, rather long and with a distinct neck; from beneath this is appended the short petiole of the abdomen (the petiole hidden from above). Abdomen pointed conic-ovate, a little longer than the rest of the body, the second segment occupying about a third of the surface. Scutellum simple. Parapsidal furrows present cephalad only. Postmarginal and stigmal veins well developed, the former somewhat the longer. Mandibles with at least three teeth.

1. PSEUDOSPHEGIGASTERUS GROTIUSI Girault. Female. Genotype.

Black, the wings densely clothed, subhyaline, the abdomen with its petiole and proximal two thirds brownish yellow, the distal third black; legs and tegulæ brown, the tarsi lighter. Antennæ black, the first ring-joint whitish, funicle 5 shortest, more or less subequal to 1, joints 2-4 longest, subequal, each somewhat longer than 1 which is subequal to the pedicel. Club much longer than any of the funicle joints. Head and thorax roughly reticulated, the lines raised.

Habitat: Thursday Island, Torres Strait. Forest.

Type: No. *Hy 1973*, Queensland Museum.

2. PSEUDOSPHEGIGASTERUS AENEUS new species.

Female:—Length, 1.85 mm.

Differing from *grotiusi* in being brassy metallic green, the coxæ concolorous, the legs reddish brown, the abdomen uniformly concolorous with the thorax. Antennæ yellowish brown,

funicle 1 a little longer than 5, 2 a little longer than 1 and longest, 5 quadrate. Thorax densely punctate. At least one mandible 3-dentate, the other apparently 4-dentate.

Male:—Not known.

Described from female captured by sweeping a forest streamlet edged with jungle growth, December 2, 1912 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1974*, Queensland Museum, the above specimen on a tag, the head and a hind leg on a slide.

3. PSEUDOSPHEGIGASTERUS VARIVENTRIS new species.

Female:—Length, 1.50 mm.

Almost exactly similar to *aeneus* but characterized by having the abdominal segments nearly of equal length, all moderately long, the second not occupying more than a fifth of the surface and not much longer than the third but equal to it. In *aeneus* the second abdominal segment occupies a third or more of the surface and is much longer than the third which is short, the following still shorter. Also in *variventris* the femora and antennæ are darker, dark brown, the funicle joints all shorter, all subquadrate. The venation is darker. At least one mandible 4-dentate, the second probably so but not plainly seen. Compared with type of *aeneus*.

Male:—Not known.

Described from one female captured in forest, September 16, 1913 (A. P. Dodd).

Habitat: Kuranda, Queensland.

Type: No. *Hy 1975*, Queensland Museum, the above specimen on a tag, the head and hind legs on a slide.

Genus SPHEGIPTEROSEMA Girault.

Antennæ 13-jointed with two ring-joints, the club 3-jointed. Parapsidal furrows complete; propodeum without a median carina; scutellum with a cross-furrow before apex. Abdomen with the petiole nearly as long as the hind coxæ, slender, segments 3 and 4 caudad notched at the meson, segment 3 as long as 2, both together occupying not quite half of the surface, segments 4 and 5 subequal, each not quite half the length of 3. Propodeal spiracle long-oval. Otherwise as in *Sphegipterosemella* Girault. (See table of genera).

1. SPHEGIPTEROSEMA FERALIS Girault. Female. Genotype.

Dark aeneous green the wings subhyaline, the legs pallid yellowish including the second coxæ, the hind coxæ dusky, the first coxæ brownish and submetallic greenish. Antennæ concolorous with the body (scape not seen). Thorax with a coarse scaly sculpture, the axillæ finer. Funicle joints nearly subequal, the first slightly the longest, barely longer than wide. Mandibles 3- and 4-dentate.

Habitat: Nelson (Cairns), Queensland. Jungle.

Type: No. *Hy 1976*, Queensland Museum.

Genus SPHEGIPTEROSEMELLA Girault.

Differs from *Sphegipterosema* in having the scutellum simple, the propodeum with a median carina, the petiole of the abdomen much shorter, the second segment of abdomen longer, its caudal margin slightly convexed, the third segment much shorter than it. Propodeum tricarinate and with a distinct neck, the spiracle small, oval. Vertex wide. Mandibles 3- and 4-dentate. Segment 2 of abdomen occupying a third of the surface.

1. SPHEGIPTEROSEMELLA UNICOLOR (Girault). Female. Genotype.

Pterosema unicolor Girault.

Dark metallic green, the wings hyaline, the antennæ, tegulæ, legs (except coxæ) and venation fuscous, the scape fulvous. Femora and tibiæ (except cephalic tibiæ) washed more or less with metallic purplish. Head and thorax densely polygonally reticulated, the areas nearly deep enough for punctures, the clypeus longitudinally striate, the abdomen finely reticulated, including its short but distinct petiole. Lateral ocelli very distant from the eye margins. Pedicel slightly longer than the first funicle joint which is slightly wider than long and longest of the funicle. Marginal vein slender, moderate in length, subequal to the long postmarginal. The stigmal vein slender, curved but a fourth shorter. Segments 3 and 4 of abdomen combined equal in length to segment 2.

Habitat: Brisbane, Queensland.

Type: No. *Hy 1977*, Queensland Museum.

EURYDINOTELLEUS new genus.

Female:—Like *Eurydinotella* Girault but the propodeum without carinæ, punctate, with a distinct neck and the parapsidal furrows are complete but shallow and not very distinct. Also the antennal club is only 2-jointed, the distal joint somewhat the longer and with a slight nipple. Mandibles 3- and 4-dentate.

Male:—Not known.

Type: The following species (*silvensis*).

1. EURYDINOTELLEUS SILVENSIS new species.

Female:—Length, 1.10 mm.

Black and punctate, the wings hyaline, the legs yellowish brown (including the coxæ); abdomen shining; scape concolorous with the legs, the antennæ black, the funicle joints cylindrical, 2-4 longest, subequal, 1 and 5 subequal to each other and to the pedicel, each slightly shorter than 2; scape long and slender, projecting beyond the vertex; club long, not enlarged, its proximal joint about equal to joint 4 of the funicle. Third ring-joint longest.

Male:—Not known.

Described from one female captured by sweeping in jungle, November 4, 1911.

Habitat: Kuranda, Queensland.

Type: No. *Hy 1978*, Queensland Museum, the above specimen on a tag, the head and hind legs on a slide.

2. EURYDINOTELLEUS ULIGINOSUS new species.

Female:—Length, 1.40 mm.

Like *silvensis* but the joints of the funicle all distinctly shorter and hardly differing in length, the terminal nipple of the club longer and more distinct, the second funicle joint only a fourth longer than wide (in the type species plainly twice longer than wide) and equal to the pedicel or nearly. The legs are paler and the general body color is dark metallic green, the thorax polygonally scaly, the propodeum with its neck very distinct and prominent.

Male:—Not known.

Described from one female captured by sweeping in jungle, June 10, 1913 (A. P. Dodd).

Habitat: Little Mulgrave River (Cairns), Queensland.

Type: No. *Hy 1979*, Queensland Museum, the above specimen on a tag, the head and a hind leg on a slide.

POLYCYSTELLA new genus.

Female:—Like *Polycystus* Westwood but the metathorax reticulated, the second abdominal segment occupying only about a fifth of the surface and with a slight sinus at meson of caudal margin, the antennæ 13-jointed with three ring-joints. Propodeum with a complete median carina, the lateral carinæ distinct but short and curved mesad, then abruptly continuing directly caudad or nearly, to the apex, the spiracle large, elliptical-reniform.* Both mandibles 4-dentate. Parapsidal furrows extending two thirds the way to caudal margin of the scutum. Scutellum simple. Petiole of abdomen about as long as the hind coxæ. Segments 3 and 4 of abdomen nearly equal, longer than 2, 5 shorter than 2. Pronotum transverse. Postmarginal vein somewhat longer than the stigmal.

Male:—Not known.

Type: The following species.

1. POLYCYSTELLA FASCIATIVENTRIS new species.

Female:—Length, 1.85 mm.

Bright metallic green, the wings hyaline, legs white except the concolorous coxæ; hind coxæ yellow interiorly; abdomen black-green, crossed by three brown bands. Thorax densely punctate, the axillæ and propodeum smoother, scaly. Antennæ yellowish brown, the scape and pedicel pale yellow; funicle joints subquadrate except the first which is longer.

Described from a single female captured by sweeping in jungle, July 26, 1913.

Habitat: Meerawa and Nelson (Cairns), Queensland.

Type: No. *Hy 1980*, Queensland Museum, the above specimen on a tag, the head, first and last pairs of legs on a slide.

POLYCYSTELOIDES new genus.

Type: The following species (*cuprea*).

1. POLYCYSTELOIDES CUPREA new species.

Female:—Length, 3.50 mm. Robust.

Metallic copper-colored, the wings hyaline, the venation and legs reddish brown, the trochanters, tarsi, distal three fourths of hind femur and distal half of intermediate femur,

* Propodeum also with a not very distinct cross carina.

white; scape reddish brown, rest of antenna coppery. First funicle joint long, twice the length of the pedicel, nearly as long as the club, the distal (fifth) joint subequal to the pedicel in length; third club joint shortest. Postmarginal and stigmal veins long, the first longer, nearly as long as the marginal. Abdomen conic-ovate, the second segment longest, the seventh next longest, the second with a straight caudal margin and occupying only about a fifth of the surface. Propodeum rather short, the lateral carinæ regularly curved, forked a little beyond the middle. Thorax all closely, densely punctate. Petiole of abdomen very short, slender. Otherwise as in the type species of *Polycystella*. Coxæ concolorous with thorax.

Male:—Not known.

Described from one female captured by sweeping in a jungle pocket, September 3, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1981*. Queensland Museum, the above specimen on a tag, the head and hind legs on a slide.

The genus differs from *Polycystella* Girault in its more robust form, the long postmarginal and stigmal veins, the shorter third and fourth segments of the abdomen, the straight caudal margin of the second segment, the short abdominal petiole and the forked lateral carinæ. There is a depression just back of the spiracle.

2. POLYCYSTELOIDES NIGRAENEUS new species.

Female:—Length, 3.15 mm.

Differs from the genotype in having a cross carina on the propodeum proximad of middle of the median carina. Also, the neck of the propodeum is more distinct, the petiole less so. Very dark blackish green, the wings hyaline, the tibiæ and tarsi white, the femora reddish brown with more or less metallic, the coxæ concolorous. Scape and pedicel reddish brown, rest black; fifth or distal funicle joint subequal to the pedicel, somewhat over a third shorter than funicle 1, which is longest of the funicle. Median carina of propodeum terminating at base (cephalic end) of neck where it forks weakly. Compared with type of genotype. Both mandibles strongly 4-dentate.

Male:—Not known.

From one female captured by sweeping in forest, September 13, 1913 (A. P. Dodd).

Habitat: Kuranda, Queensland.

Type: No. *Hy 1982*, Queensland Museum, the above specimen on a tag, the head and hind legs on a slide.

PARACROCLISIS new genus.

Female:—Like *Acroclisis* Foerster but the second abdominal segment is much shorter, occupying somewhat less than a fourth of the surface, segment 3 half its length and with its caudal margin deeply concaved, segment 4 longest, twice the length of 2 and occupying nearly half of the surface. Head large, mandibles 4-dentate. Pronotum transverse; parapsidal furrows distinct, complete. Propodeum with a long median carina, the spiracles moderate, long-oval, the spiracular sulcus present, the lateral carina distinct only at distal half, just mesad of the sulcus. Petiole slender, one and a half times or more the length of the hind

coxæ. Median and lateral carinæ of propodeum joined around caudal margin. Postmarginal and stigmal veins short, the former longer of the two, only about a half or less the length of the marginal. Scutellum near tip abruptly truncated but without a true cross-suture. Propodeum with a short neck, reticulated-scaly. Antennæ 13-jointed with two ring-joints.

Male:—Not known.

Type: The species described herewith.

1. PARACROCLISIS WASHINGTONI new species.

Female:—Length, 2.20 mm.

Opaque dark blue, the abdomen polished black, the wings hyaline, the coxæ concolorous, the legs otherwise reddish brown, the tarsi white. Flagellum black, the first funicle joint longest, slightly longer than wide, the others shortening in succession, the sixth very slightly wider than long; joint 1 of club longest but wider than long. Thorax densely reticulately punctate.

Described from one female captured by sweeping in forest, September 6, 1913.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1983*, Queensland Museum, the above specimen on a tag, the head and hind legs on a slide.

LOMONOSOFFIELLA new genus.

Female:—Like the description of *Trigonogastra* Ashmead (1904) but the lateral folds are present and half complete, the abdominal petiole is very long and slender, over twice the length of the hind coxæ, the scutellum with a cross-suture a short distance before tip, distad of this polished, the mandibles 3- and 4-dentate, the parapsidal furrows two thirds complete. Second abdominal segment occupying only about a fourth of the surface, its caudal margin straight or with a very slight sinus at meson, the fourth segment longest, a little longer than 2, while 3 is somewhat shorter than 2; abdomen ovate, its body a little shorter than the thorax, polished. Antennæ 13-jointed with two ring-joints, the club 3-jointed. Postmarginal vein somewhat longer than the stigmal, the wings hyaline. Whole of thorax densely, reticulately punctate except the polished portion of scutellum which is finely reticulated. A spiracular sulcus just mesad of each spiracle.

Male:—Not known.

The genus is dedicated with great respect to Michael Lomonosoff.

Type: The following species.

1. LOMONOSOFFIELLA ALBIPES new species.

Female:—Length, 2.00 mm.

Dark metallic green, the scutellum dark coppery, the abdomen deep blue; legs white except cephalic aspect of cephalic coxæ; scape and pedicel whitish, the rest of the antenna black; club with a minute nipple; first joint of funicle a little longer than wide, somewhat shorter than the pedicel, the distal funicle joint a little wider than long.

Described from one female captured by sweeping in a jungle pocket, July 30, 1913 (A. P. Dodd).

Habitat: Nelson and Kuranda, Queensland.

Type: No. *Hy 1984*, Queensland Museum, the above specimen on a tag, the head and hind legs on a slide.

A second female specimen of this species was captured at Kuranda, jungle, September 12, 1913. It differed as follows: Front and hind coxæ concolorous except at tip, the legs more yellowish, the other coxæ yellowish brown; the propodeum had a very delicate obscure median carina and its distal end dorsad was glabrous (less distinctly so in *albipes*); the abdomen was dark metallic green. Compared with type specimen.

GENERIC TABLE OF THE AUSTRALIAN SPHEGIGASTERINI.

The Australian genera seem characterised, as in most Eulophidæ, by a greater number of ring-joints in the antennæ, the European and North American genera usually bearing two, the Australian genera usually three.

1. Antennæ without ring-joints, 12-jointed.
   Wings vestigial but perfect, the marginal vein long. Parapsidal furrows nearly meeting caudad. Antennæ 12-jointed. Scutellum with a cross-furrow before apex. Mandibles tridentate. Nonmetallic.
   Parurios Girault (Type: *P. australiana* Girault).
2. Antennæ with but *one* ring-joint, 13-jointed.
   Parapsidal furrows complete. Mandibles bidentate. Nonmetallic. Petiole of abdomen shorter than the hind coxa, the second segment not occupying more than a third of the surface, its caudal margin incised at meson.
   Sphegigasteroides Girault (Type: *S. rufinotum* Girault).
3. Antennæ with two ring-joints.
   Antennal club solid; antennæ 11-jointed.
   Parapsidal furrows incomplete; petiole of abdomen short and stout; median carina of propodeum intersected by a transverse carina, the propodeum with a distinct neck and spiracular sulci. Mandibles tridentate. Scutellum with a faint cross-suture before apex.
   Polycystoides Girault (Type: *P. tennysoni* Girault).
   Antennal club 3-jointed; antennæ 13-jointed.
   Parapsidal furrows complete.
   Petiole of abdomen slender, distinctly longer than the hind coxæ.
   Segment 2 of abdomen very large, occupying full two thirds of the surface, the following very short; pronotum large quadrate; vertex narrow. **Syntomopus** Walker (Type: *S. thoracicus* Walker.)
   Segment 2 of abdomen occupying less than a fourth of the surface, segment 3 half as long, 4 longest, twice the length of 2 and occupying nearly half the surface; pronotum transverse; mandibles 4-dentate. **Paracroclisis** Girault (Type: *P. washingtoni* Girault).
   Petiole of abdomen no longer than the hind coxæ.
   Scutellum with a cross-furrow before apex; petiole of abdomen nearly as long as the hind coxæ; segments 3 and 4 of abdomen notched at meson of caudal margin, segments 2 and 3 subequal, combined occupying not quite half of the surface. Propodeum without a median carina.
   Sphegipterosema Girault (Type: *S. feralis* Girault).

Scutellum simple; petiole of abdomen shorter than hind coxa; segment 2 of abdomen much longer than 3, 3 and 4 not notched; propodeum with a median carina.

Sphegipterosemella Girault (Type: *S. unicolor* Girault).

Parapsidal furrows incomplete.

Petiole of abdomen twice or more longer than the hind coxæ; scutellum with a cross-suture before apex.

Propodeum with incomplete lateral carinæ, the median absent; mandibles 3- and 4-dentate; segment 2 of abdomen occupying only a fourth of the surface, its caudal margin with a very slight sinus at meson, segment 4 longest, a little longer than 2. Postmarginal vein a little longer than the stigmal.

Lomonosoffiella Girault (Type: *L. albipes* Girault).

4. Antennæ with three ring-joints.

Antennal club solid; antennæ 11-jointed; club with a short nipple.

Propodeum rather long, with a distinct neck, noncarinate; petiole of abdomen short, segment 2 occupying about a third of the surface, longer than 3, which is short. Parapsidal furrows incomplete.

Pseudosphegigasterus Girault (Type: *P. grotiusi* Girault).

Antennal club 2-jointed; antennæ 12-jointed.

Propodeum noncarinate, with a distinct neck; petiole of abdomen nearly as long as the hind coxæ; parapsidal furrows complete but not very distinct; segments 2 and 3 of abdomen long and subequal.

Eurydinotelleus Girault (Type: *E. silvensis* Girault).

Antennal club 3-jointed.

Parapsidal furrows complete.

Second segment of abdomen longest or as long as segment 3; petiole not longer than hind coxæ.

Propodeum without a complete median carina, the lateral carinæ present, the median carina obtuse, obscure and at base only.

Segment 2 of abdomen about twice the length of 3; postmarginal vein nearly as long as the marginal. Abdomen convexed ventrad, its petiole short.

Pterosemoidea Girault (Type: *P. flavipes* Girault).

Segment 2 of abdomen subequal to 3, together occupying over half of the surface, the petiole nearly as long as the hind coxæ. Mandibles 3- and 4-dentate.

Apterosemoidea Girault (Type: *A. nigriviridis* Girault).

Segment 2 of abdomen only slightly longer than 3, together the two occupying less than a third of the surface; mandibles 4-dentate; stigmal vein long. Petiole of abdomen very short.

Apterosemoidella Girault (Type: *A. bioculata* Girault).

Propodeum tricarinate.

Segment 2 of abdomen occupying three fourths of the surface, its caudal margin straight, the petiole not quite as long as the hind coxæ. Mandibles 4-dentate.

Pterosemella Girault (Type: *P. viridis* Girault).

Second segment of abdomen not as long as segment 4; petiole longer than hind coxæ.

Segment 2 of abdomen occupying only a fourth of the surface, a little longer than 3 and somewhat shorter than 4; segments 2 and 3 notched at the meson caudad; propodeum without a median carina, mound-like at apex; mandibles 3- and 4-dentate.

Merismomorpha Girault (Type: *M. acutiventris* Girault).

Parapsidal furrows not complete, only cephalad.

Segments 2 or 3 of abdomen longest, their caudal margins straight (entire).

Segments 2 and 3 of abdomen long and subequal occupying half the surface.

Petiole of abdomen nearly as long as the hind coxæ.

Mandibles 3- and 4-dentate; propodeum with a distinct neck and lateral carinæ. Abdomen not long. Postmarginal vein slightly longer than the stigmal.

Eurydinotella Girault (Type: *E. prima* Girault).

Segments 2 and 3 of abdomen unequal, 2 longer, combined occupying much less than half of the surface.

Petiole of abdomen much shorter than the hind coxæ.

Propodeum with abbreviated median and lateral carinæ; abdomen long, pointed conic-ovate, longer than the rest of the body; postmarginal vein twice the length of the stigmal; segment 2 of abdomen occupying a fifth of the surface, four times the length of 3. Mandibles 3- and 4-dentate.

Eurydinotomorpha Girault (Type: *E. pax* Girault).

Propodeum tricarinate, often with a cross-carina, the lateral carinæ forked; mandibles 4-dentate; segment 2 of abdomen occupying about a fifth of the surface, abdomen conic-ovate; postmarginal and stigmal veins long, the former the longer, nearly as long as the marginal.

Polycysteloides Girault (Type: *P. cuprea* Girault).

Segments 2 or 3 of abdomen not longest.

Petiole of abdomen nearly as long as the hind coxæ.

Propodeum tricarinate, the lateral carinæ irregularly curved; mandibles 4-dentate; segments 3 and 4 of abdomen nearly equal, longer than 2, which bears a slight sinus at meson of caudal margin. Postmarginal vein somewhat longer than the stigmal.

Polycystella Girault (Type: *P. fasciativentris* Girault).

TRIBE PACHYNEURINI.

GENUS PACHYCREPOIDEUS Girault and Sanders.

1. PACHYCREPOIDEUS DUBIUS Girault and Sanders.

One female on a window, Nelson, North Queensland, March 29 and April 13, 1912. This is a parasite of the cosmopolitan, omnipresent *Musca domestica* Linnæus, so that it is not surprising to find it in Australia. It was described from North America. Later, another female was found in a vial labelled "From window, Cooktown, Q., Feb. 6, 1912," and another from a window at Herberton, December 28, 1911.

Genus PACHYNEURONELLA Girault.

Differing from *Pachyneuron* Walker in bearing but eleven antennal joints with two ring-joints, the funicle 4-jointed; petiole of abdomen extremely short; flagellum short and clavate, the funicle joints transverse; scutellum simple. Propodeum very short, noncarinate. Mandibles tridentate, the third tooth broadly concavely truncate. Marginal vein about twice longer than wide, the postmarginal vein a mere spur, the stigmal also very short, merely a minute knob on a very short petiole, not half the length of the marginal which widens distad. Abdomen conic-ovate, convexed ventrad near base.

1. PACHYNEURONELLA VIRIDIS Girault. Female. Genotype.

Dark metallic green, the abdomen very dark; wings clear; legs concolorous, the tibiæ dusky, the tarsi pale. Body with very fine velvety sheening as in *Tetrastichus*. Pedicel short but longer than any of the funicle joints; proximal club joint equal to half of the club.

Habitat: Adelaide, South Australia.

Type: No. *I. 1338*, South Australian Museum, Adelaide.

Subfamily DIPARINÆ.

Genus PANSTENON Walker.

1. PANSTENON AUSTRALIS Girault. Female, male

Brown-black, the head and thorax washed with metallic green, the abdomen and all of legs brownish; fore wings slightly embrowned; antennæ concolorous with the head. Head and thorax with a fine polygonal sculpture, the propodeum with a network of interlacing carinæ; a long, irregular carina laterad of the spiracle.

The male is the same but the pronotum is brownish, the distal two thirds of abdomen dusky.

Habitat: Cairns, Queensland. Forest bog.

Types: No. *Hy 1985*, Queensland Museum.

2. PANSTENON AUSTRALIENSIS new species.

Female:—Length, 1.25 mm. Slender.

Somewhat like *australis* but smaller and more slender, the wings hyaline and the body dark shining metallic black-green suffused with brownish, the legs pale brownish including the coxæ, much of the femora concolorous. Antennæ wholly black, scape and pedicel somewhat lighter. Thorax reticulated, the propodeum rugose. Antennæ with all the funicle joints subequal and longer than wide. Both mandibles 4-dentate. Propodeal spiracle exceedingly minute, round, the carina laterad of it obscure or absent.

Male:—Not known.

Described from one female specimen captured by sweeping jungle growth along a forest stream, June 29, 1913.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1986*, Queensland Museum, the above specimen on a tag, the head and hind legs on a slide.

3. PANSTENON BELLICOSUS new species.

Female:—Length, 2.10 mm.

Like the preceding but longer and dark metallic purple, the scutellum aeneous; legs including coxæ and ventral abdomen excepting at tip yellow-brown; centre of abdomen above at proximal half or more yellow-brown except at extreme base. Antennæ as in the preceding but the scape yellow. Vertex broad; pronotum large, subquadrate, the parapsidal furrows incomplete. Head black-blue or else purple.

Male:—Not known.

Described from one female captured by sweeping jungle along a forest streamlet, May 6, 1913.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1987*, Queensland Museum, the above specimen on a tag, the antennæ and hind legs on a slide.

A second female was captured August 23 by sweeping in forest.

4. PANSTENON GRACILIS new species.

Female:—Length, 1.50 mm.

Almost exactly similar to *bellicosus* but the vertex is much thinner, the abdominal petiole and cephalic two thirds of pronotum and propleura yellowish brown and the head and thorax are wholly dark metallic green, the abdomen more broadly black across base and with a small round spot at the meson in the yellow just proximad of the metallic black-green distal fourth. Also the marginal vein is shorter, the body still more slender.

Male:—Not known.

Described from one female captured by sweeping in the forest, August 20, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1988*, Queensland Museum, the above specimen on a tag, the head and hind legs on a slide.

Subfamily SPALANGIINÆ.

Genus SPALANGIA Latreille.

1. SPALANGIA GROTIUSI new species.

Female:—Length, 2.20 mm.

Like *australiensis* Girault, which is subaeneous black, but the pronotum has a line of foveæ across it just before tip (caudal margin) and the abdomen is glabrous. Also the antennæ are slightly different, the second funicle joint a little longer in this species. Neck of pronotum scabrous in both species. Abdominal petiole (*grotiusi*) longitudinally striate; face with a median line of small foveæ from about the cephalic ocellus to near a point opposite the ventral ends of the eyes; also two other similar lines but shorter and originating apparently at each antennal insertion and running dorso-mesad to a point a little dorsad of the ventral end of the median foveate line; face otherwise glabrous. In *australiensis*, the pronotum is alutaceous and not as rough as the surface of the abdomen.

Male:—Not known.

Described from one female captured by sweeping partly cleared forest, second growth, July 2, 1912. Respectfully dedicated to Hugo Grotius.

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1989*, Queensland Museum, the above specimen on a tag, the antennæ on a slide (with the type of *Prospaltella seminigriclava*).

2. SPALANGIA AUSTRALIENSIS new species.

Female:—Length, 1.70 mm.

Shining black, the wings hyaline; legs concolorous, the tarsi white. Antennæ 10-jointed, the club somewhat enlarged and shorter than usual, the pedicel elongate, the funicle joints all short, wider than long but the first subquadrate, not half the length of the pedicel which is nearly as long as the club. Mandibles bidentate. Abdomen very finely densely reticulated, the fourth segment longest. Propodeum glabrous, margined nearly all around with foveæ and with lateral foveate lines, at the meson a pair of these which touch beyond the middle and are separated by a carina, proximad. Scutellum glabrous, at distal third crossed by a faint line of minute pin-punctures; just back (caudad) of this on each side at lateral margin is an isolated, distinct puncture-fovea, round. Suture between axillæ and scutellum foveate. Axillæ with several scattered pin-punctures discally. Cephalad of the transverse line of scutellum on each side, a short longitudinal line of foveæ (3 or 4) and on each side of the meson about two foveæ caudad in a longitudinal line. Scutum finely alutaceous, together with the head bearing obscure scattered setigerous punctures. Parapsidal furrows foveate. Pronotum densely sculptured like the abdomen.

Male:—Not known.

Described from two females captured from windows, December 28, 1911.

Habitat: Herberton, Queensland.

Type: No. *Hy 1990*, Queensland Museum, one of the above specimens on a tag, the head on a slide.

2. SPALANGIA VIRGINICA new species.

Male:—Length, 1.50 mm.

Differs from the preceding in being a little more brassy and in lacking the cross-line of foveæ at distal third of the scutellum. Also the abdomen is smoother while the impunctate areas of the thorax show a very minute reticulation like that of the abdomen. First funicle joint as long as the next two combined.

Female:—Not known.

Described from one male captured by sweeping in a jungle, June 24, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1901*, Queensland Museum, the above specimen on a tag.

GENUS SPALANGIOMORPHA Girault.

Antennæ 8-jointed, the club solid, no ring-joint. Fore wings naked, with long marginal cilia, resembling those of *Signiphora* but the stigmal vein is normal. Cephalic and posterior femora swollen but simple. Mandibles 4-dentate. Head simple. Funicle joints subquadrate. Postmarginal vein very short but distinct. Fore wings with a dense tuft of black bristles at the bend of the long submarginal vein. Hind wings as in *Signiphora*. Abdomen robust. With the subfamily characters.

1. SPALANGIOMORPHA FASCIATIPENNIS Girault. Female. Genotype.

Reddish brown, the abdomen black, the fore wing with a brownish stripe across it from the distal half of the marginal and the stigmal veins, the band not crossing to the cephalic margin at the stigmal vein; also beneath (against) the tuft of setæ a small brownish spot. Longest marginal cilia equal nearly to a third of the greatest wing width. Scutum and scutellum metallic purplish black; petiole of abdomen (which is short) and the legs yellowish. Glabrous, the propodeum finely transversely lineolated. Face more yellowish about the clypeus. Club black, the distal funicle joint fuscous, rest of antenna yellowish brown; pedicel somewhat longer than the first funicle joint which is slightly longer than wide, the distal joint of funicle wider than long. Pedicel not long. Ovipositor slightly exserted.

Habitat: Port Douglas, Nelson and Cooktown, Queensland; Port Darwin, Northern Territory.

Type: No. *Hy 1992*, Queensland Museum.

This species is rather commonly met with on the windows of grocery stores and Mr. G. F. Hill has sent me specimens from the Northern Territory, where he reared it from a "grain moth."

2. SPALANGIOMORPHA FRATER new species.

Female:—Length, 1.35 mm., excluding ovipositor.

Very similar to *fasciatipennis* but the first funicle joint wider than long, the thorax wholly reddish brown (scutum and scutellum tinged with purplish); in the type species, the pronotum is washed with metallic purple in addition to the scutum and scutellum which are metallic purple; the brownish abdominal petiole is longer as is also the exserted portion of the ovipositor (whitish at base in both species). The propodeum is finely, transversely lineolated in both species, the rather long second abdominal segment deeply incised at meson caudad. In *frater*, the stripe across the fore wing appears to project distad at centre far beyond the stigmal vein; the exserted portion of the ovipositor is over a fourth the length of the abdomen.

Male:—Not known.

Described from one female captured by sweeping in a jungle pocket, September 8, 1913 (A. P. Dodd).

Habitat: Nelson (Cairns), Queensland.

Type: No. *Hy 1993*, Queensland Museum, the above specimen on a slide (with the type appendages of *Polycystcloides cuprea* Girault).

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SOME SOUTH QUEENSLAND PROCTOTRYPOIDEA.

By Alan P. Dodd.

The following species of *Proctotrypoidea* have been identified in a collection of Parasitic Hymenoptera received from the Queensland Museum. The structure and sculpture could not in all cases be satisfactorily ascertained, as the specimens were all on slides. The types are in the collection of the Queensland Museum, Brisbane. The magnification used was $\frac{2}{3}$-inch objective, 1-inch optic, Bausch and Lomb.

Family SCELIONIDÆ.

Subfamily SCELIONINÆ.

Genus PLATYTELEIA Dodd.

PLATYTELEIA LONGIPENNIS sp. nov.

Female:—Length, 1.60 mm.

Shining black; legs (excluding coxæ) bright red; first five antennal joints golden yellow. Antennæ as in the type species, *latipennis* Dodd. Forewings extending well beyond apex of abdomen; broad; almost hyaline; marginal cilia very short; discal cilia rather coarse, dense; submarginal vein attaining the costa a little before the middle of the wing; marginal vein two-thirds as long as the stigmal, which is moderately long, rather oblique; postmarginal vein two and a-half times as long as the stigmal. Structure probably as in *latipennis*.

Habitat: South Queensland (Kelvin Grove, near Brisbane). Described from one female labelled "among herbage, 6th April, '13, H. Hacker."

Type: Hy 1625, Queensland Museum, a female on a slide.

Genus HADRONOTUS Foerster.

HADRONOTUS sp. (?)

There was a specimen of *Hadronotus* in the collection, labelled "Brisbane, sweeping undergrowth, mostly Eucalypts, 20-iv-13, H. Hacker." The specimen is a male, and since there are eighteen species in the genus from Australia, I have not further identified it.

Genus BARYCONUS Foerster.

1. BARYCONUS AMABILIS sp. nov.

Female:—Length, 2.60 mm.

Black; thorax more or less reddish brown; abdomen probably somewhat reddish brown but chiefly black; legs (including coxæ) and first six antennal joints golden yellow. Antennæ almost as in *splendidus* Dodd but the pedicel and first funicle joint are only two and a-half times as long as wide. Forewings as in *splendidus*. Structure, as far as could be ascertained, as in *splendidus*. Ovipositor not exserted. This species is probably coloured much as in *splendidus* to which it is closely related, differing chiefly in having the ovipositor not exserted. *Splendidus* is also from the Brisbane district.

Habitat: South Queensland (Clayfield, near Brisbane). Described from one female labelled "sweeping herbage."

Type: Hy 1626, Queensland Museum, a female on a slide in company with a Diapriid.

2. BARYCONUS VULGARIS sp. nov.

Female:—Length, 2.00 mm.

Black; thorax and base of abdomen a little reddish brown; legs (including coxæ) and antennal scape golden yellow. Antennal structure as in *amabilis* Dodd. Forewings extending almost to apex of abdomen; moderately broad, the apex rather rounded; a little infuseated; submarginal vein attaining the costa distinctly beyond the middle of the wing; marginal vein short; stigmal vein moderately long, scarcely oblique, slightly convexly curved, the convexity distad; postmarginal vein a little longer than the stigmal; basal vein rather indistinct. Ovipositor not exserted; horn on abdomen moderately long. A species probably nearest to *niger* Dodd and *fuscus* Dodd. The twenty-third Australian species of the genus.

Habitat: South Queensland (Clayfield, near Brisbane). Described from one female labelled "sweeping herbage, 8-iv-13, H. Hacker."

Type: Hy 1627, Queensland Museum, a female on a slide.

Genus BÆONEURELLA Dodd.

BÆONEURELLA BELLA sp. nov.

Female:—Length, 1.00 mm.

Head and thorax black; abdomen and legs golden yellow; antennæ fuscous, suffused with yellow basally. Antennal structure as in *girault*i Dodd. Forewings a little infuseated, otherwise as in *girault*i. Thorax no longer than

wide. Differing from the four described species of the genus in having the abdomen only twice as long as wide, all the other species having the abdomen four times as long as wide.

Habitat: South Queensland (Brisbane). Described from one female labelled "sweeping undergrowth, mostly Eucalypts, 16-iv-13, H. Hacker."

Type: Hy 1628, Queensland Museum, a female on a slide.

Subfamily TELENOMINÆ.

Genus PHANURUS Thomson.

PHANURUS HACKERI sp. nov.

Female:—Length, 1.40 mm.

Black; legs and antennal scape lemon yellow; next five antennal joints yellow, slightly dusky. Head as wide as thorax. Thorax twice as long as wide. Abdomen a little longer than the head and thorax united, fully three times as long as wide. Antennæ 11-jointed; scape equal to next three joints combined; pedicel slender, two and a-half times as long as wide; first funicle joint as long as the pedicel; second and third subequal, a little shorter; fourth slightly longer than wide; club slender, 5-jointed, all the joints a little longer than wide, third slightly the widest. Forewings just reaching apex of abdomen; moderately narrow; hyaline; longest marginal cilia equal to one-sixth the greatest wing width, discal cilia fine and dense in about 30 rows; submarginal vein attaining the costa about the middle of the wing; marginal vein one-half as long as the stigmal which is moderately long, oblique; postmarginal vein three times as long as the stigmal; venation light fuscous.

Habitat: South Queensland (Toohey's Hill, near Brisbane). Described from one female labelled "sweeping Leptospermum, 16-iv-13, H. Hacker."

Type: Hy 1629, Queensland Museum, a female on a slide.

Subfamily BÆINÆ.

CERATOBÆOIDES nov. gen.

Female:—Like *Ceratobæus* Ashmead but the head viewed from in front is triangular, being lengthened dorso-ventrad; and the antennal club is 4-jointed.

Type: The following species (*hackeri*).

1. CERATOBÆOIDES HACKERI sp. nov.

Female:—Length, 1.75 mm.

Reddish brown; eyes and ocelli black; antennæ somewhat dusky; legs golden yellow. Head transverse; viewed from in front, triangular; ocelli wide

apart, the lateral ones almost touching the eye-margins; eyes large; mandibles tridentate. Abdomen petiolate; broadly oval; as long as the head and thorax united; wider than the thorax; only one-half longer than wide; first segment wider than long, with a short, blunt horn; second and third subequal, the longest; remaining segments short. Antennæ 10-jointed; scape equal to next five joints combined; pedicel two and a-half times as long as wide; funicle joints all narrower than the pedicel; first one-half longer than wide; 2-4 very short, transverse; club large, as long as the scape, compact, 4-jointed. Forewings very long, extending well beyond apex of abdomen; broad; slightly infuscated, but there is a very dark spot at the marginal vein, and a moderately dark line at the apex of the stigmal vein; marginal cilia short; discal cilia fine, excessively dense; submarginal vein attaining the costa about the middle of the wing; marginal vein short; stigmal vein moderately long and oblique; postmarginal almost as long as the stigmal; basal vein not indicated. Hind wings enormous; almost as long and as broad as the forewings; hyaline.

Habitat: South Queensland (Brisbane). Described from one female labelled "among undergrowth, 26-iv-13, H. Hacker." The species is named in honour of the collector.

Type: Hy 1630, Queensland Museum, a female on a slide with the type of *longiceps* Dodd.

2. CERATOBÆOIDES LONGICEPS sp. nov.

Female:—Length, 1.50 mm.

Reddish brown; head black; abdomen, except first segment, black. Like *hackeri* Dodd but the head viewed from in front is longer dorso-ventrad; the spot in the forewing is much lighter; the stigmal vein is shorter; the discal cilia is dense, but not exceedingly dense; the hindwings are broad but are only one-half as broad as the forewings.

Habitat: South Queensland (Brisbane). Described from one female labelled as in the preceding species.

Type: Hy 1631, Queensland Museum, a female on a slide, with the type of *hackeri* Dodd.

Family PLATYGASTERIDÆ.

Genus PLATYGASTOIDES Dodd.

PLATYGASTOIDES MIRABILIS Dodd.

These is a female specimen of this remarkable species in the collection, labelled " Clayfield, Brisbane, on flowers of Bæckea, 22-iv-13, H. Hacker." The species had formerly been recorded from several localities in North Queensland.

Genus APHANOMERUS Perkins.

1. APHANOMERUS RUFESCENS Perkins.

There is a female specimen of this common species labelled "Toohey's Hill, Brisbane, sweeping Leptospermum, 16-iv-13, H. Hacker."

2. APHANOMERUS PUSILLUS Perkins.

There is one slide in the collection containing several female specimens of this species, labelled "Brisbane, H. Hacker."

APHANOMERELLA nov. gen.

Female:—Head a little wider than the thorax; thorax one-half longer than wide; scutellum semicircular. Abdomen subsessile, a little longer than the head and thorax united; as wide as the thorax; first segment short, transverse; second segment long, equal to one-half the abdominal length; ovipositor exserted for a short distance. Antennæ 10-jointed, scape, pedicel, four funicle joints and a 4-jointed club; scape long and slender; pedicel twice as long as wide; funicle joints as in the *Bœinæ*, all narrower than the pedicel, first a little longer than wide; 2-4 short, transverse; club compact, 4-jointed. Forewings reaching a little beyond apex of abdomen; submarginal vein terminating in a knob at about two-fifths the wing length; basal and median veins present. Tarsi 5-jointed.

Male:—Like the female but the second funicle joint is enlarged, a little wider than the first, and not very transverse, only one-half wider than long.

A genus resembling *Aphanomerus* Perkins and with similar habits, but differing in bearing a 4-jointed, though compact, antennal club, and in having the same number of funicle joints in both sexes.

Type: Aphanomerella ovi sp. nov.

Female:—Length, 1.25 mm.

Shining black; legs (excluding the coxæ) golden yellow; antennal pedicel and funicle joints golden yellow; scape and club brown. Forewings broad; hyaline; marginal cilia short; discal cilia moderately fine and dense. Ovipositor exserted for a length equal to one-third that of the abdomen.

Male:—The same, but the antennæ wholly clear golden yellow.

Habitat: South Queensland (Brisbane). Described from 7 females, 1 male, labelled "Bred from eggs of a bug, 8-iv-13, H. Hacker."

Types: Hy 1632, Queensland Museum, 7 females, 1 male on a slide.

Anthony James Cumming, Government Printer, Brisbane.

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